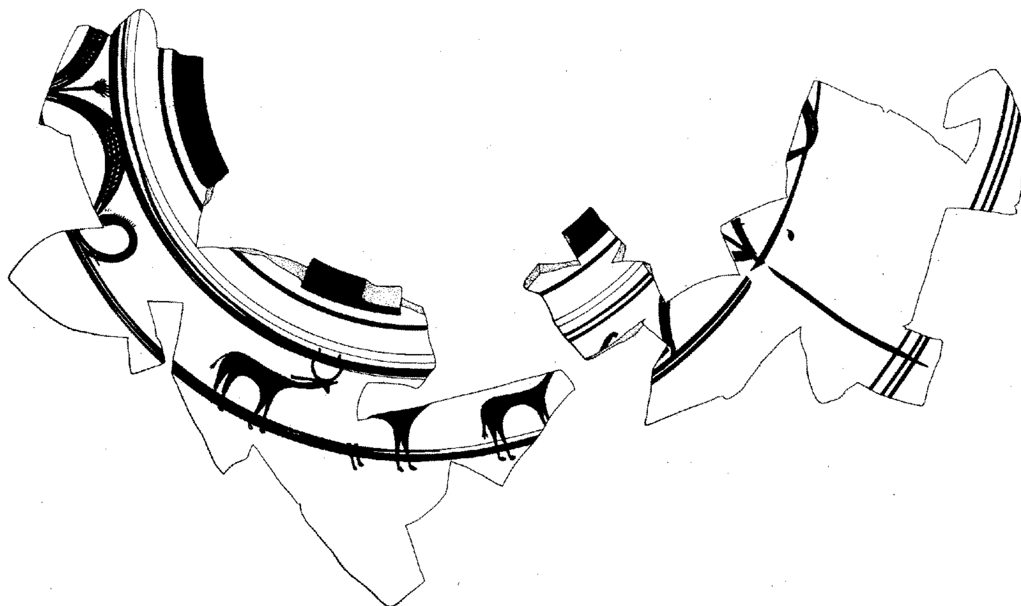
HARAPPAN CIVILIZATION AND ROJDI



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FOREWORD

The authors would like to take this opportunity to thank the many people and institutions who have supported the four seasons of renewed excavation at Rojdi. Our first thought in this regard turns to the Archaeological Survey of India which gave permission for the team to work at the site. Additional permission, as well as generous financial support, came from the Gujarat State Government. Grants from the Smithsonian Institution's Foreign Currency Program and the National Science Foundation made it possible for the American team to join their Gujarati colleagues in this venture and we would like to personally thank Ms. Francine Berkowitz, Dr. John Yellen and Mr. Osman Shinaishin for their support. Substantial administrative support and advice also came from the American Institute of Indian Studies and Dr. Pradeep R. Mehendiratta, the Institute's Director in New Delhi.

Drs. D.P. Agrawal and Sheela Kusumgar of the Physical Research Laboratory in Ahmedabad supplied us with a series of perfectly run radiocarbon dates. Dr. G. L. Badam was most generous in his assistance with faunal analysis as were several advisors on palaeobotany: Drs. Vishnu-Mittre, M.D. Kajale and Lorenzo Costantini. Dr. I. Mahadevan joined the team as our Harappan Epigrapher. Thank you all.

We also want to draw attention to those who worked on this project in the field: the staff of the Gujarat State Department of Archaeology and members of the University of Pennsylvania team. The Rojdi Project was a success in large measure because of the fine spirit of cooperation that developed among those who worked in our excavation trenches and lived in the camp.

Finally, special thanks from Dr. Possehl go to Mr. Y.M. Chitalwala who, for most of the project, represented the Gujarat Department of Archaeology at the site. He has been a wise counsellor, generous host and good friend to all of us.

New Delhi
January 17, 1989

GREGORY L. POSSEHL
M.H. RAVAL

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INTRODUCTION

THE Harappan or Indus Civilization has proved to be one of the most enigmatic of the world's ancient urban systems. This can be attributed for the most part to the total absence of true historical records that document the Harappan peoples. Given this fact, and the current state of research on the Indus Civilization, new excavation is almost certainly going to produce major insights into our understanding of ancient India's first cities.

THREE NEW INSIGHTS FROM ROJDI

It was within this spirit of research that renewed excavation at the Harappan site of Rojdi (Figures 1 through 6 and Plate 1) in Rajkot District of Saurashtra (70° 55' east -21° 52' north) was begun in 1982-83 by a joint archaeological team from the Gujarat State Department of Archaeology and The University Museum of the University of Pennsylvania. Four seasons of field work were completed at the site (Possehl et al. 1984 and 1985) and have yielded a number of significant insights into Harappan history and culture. This book is a report on these findings, which will be presented in some detail as our narrative unfolds. The principal insights would seem to be three in number and can be summarized as follows.

First, the excavations at Rojdi have produced evidence for a new regional manifestation of the Harappan Civilization, which we have come to call the "Sorath Harappan." The full description of the Sorath Harappan will be found below but briefly it can be defined in terms of a distinctive form of settlement and subsistence, as well as a unique body of material culture. The mature Sorath Harappan is contemporary with the Urban Phase of the Indus Civilization, and is a part of this multi-regional system; but it is distinct in many of its attributes and processes, such as we know them.

The emergence of the Sorath Harappan came as a result of the chronological study of the site, assisted by the participation of the Radiocarbon Dating Facility at the Physical Research Laboratory in Ahmedabad. The dates for the first two phases of occupation at Rojdi indicated that these habitation levels were fully within the third millennium B.C., but the material culture is quite distinct from Mature Indus material, at least as it is known from the sites in Kutch and Sindh.

The second insight from the work at Rojdi comes in the form of a very large corpus of palaeobotanical materials. The flotation system that was employed at the site produced approximately 10,000 specimens from approximately 70 different plants, many of which are cultivars. This material is in the process of being fully analyzed, but a brief summary of the collection as we now understand it is given below.

It can be added that the collection of animal bones from the site is also large and well preserved. Additional insights into the subsistence system can be expected to be derived from this source of information.

Third and finally, the excavation program developed a very large exposure of architecture on the so-called "South Extension" of the site (Figure 4). This building period falls within the final

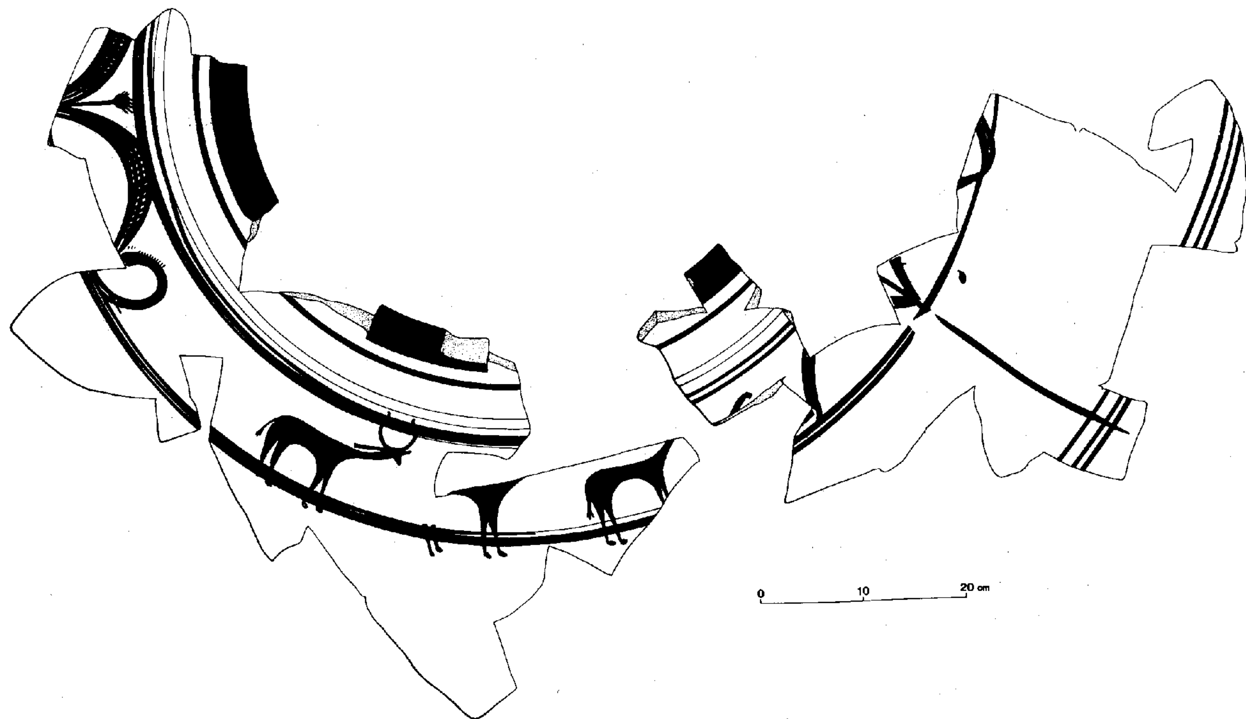


Fig. 1 Frontpiece: Painted Pot from the Large Square Building

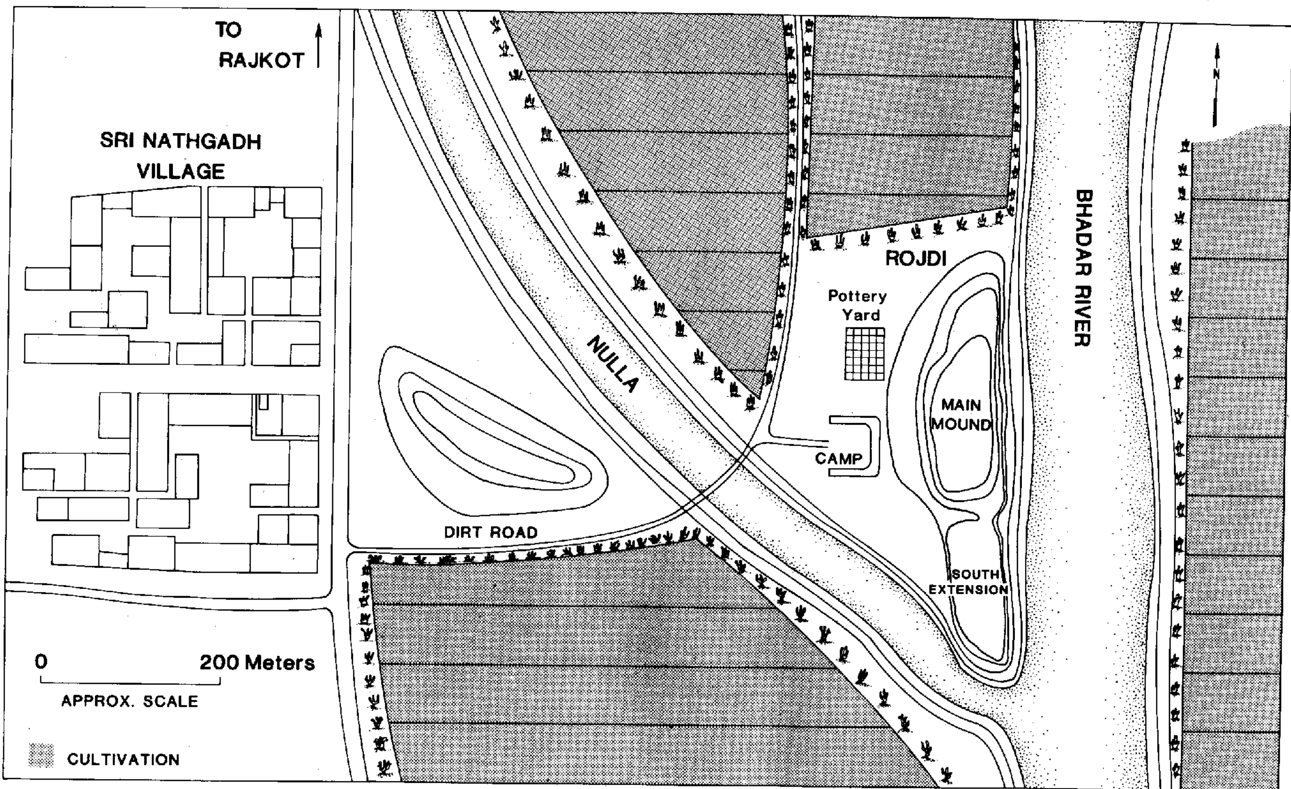


Fig. 2 The Location of Rojdi

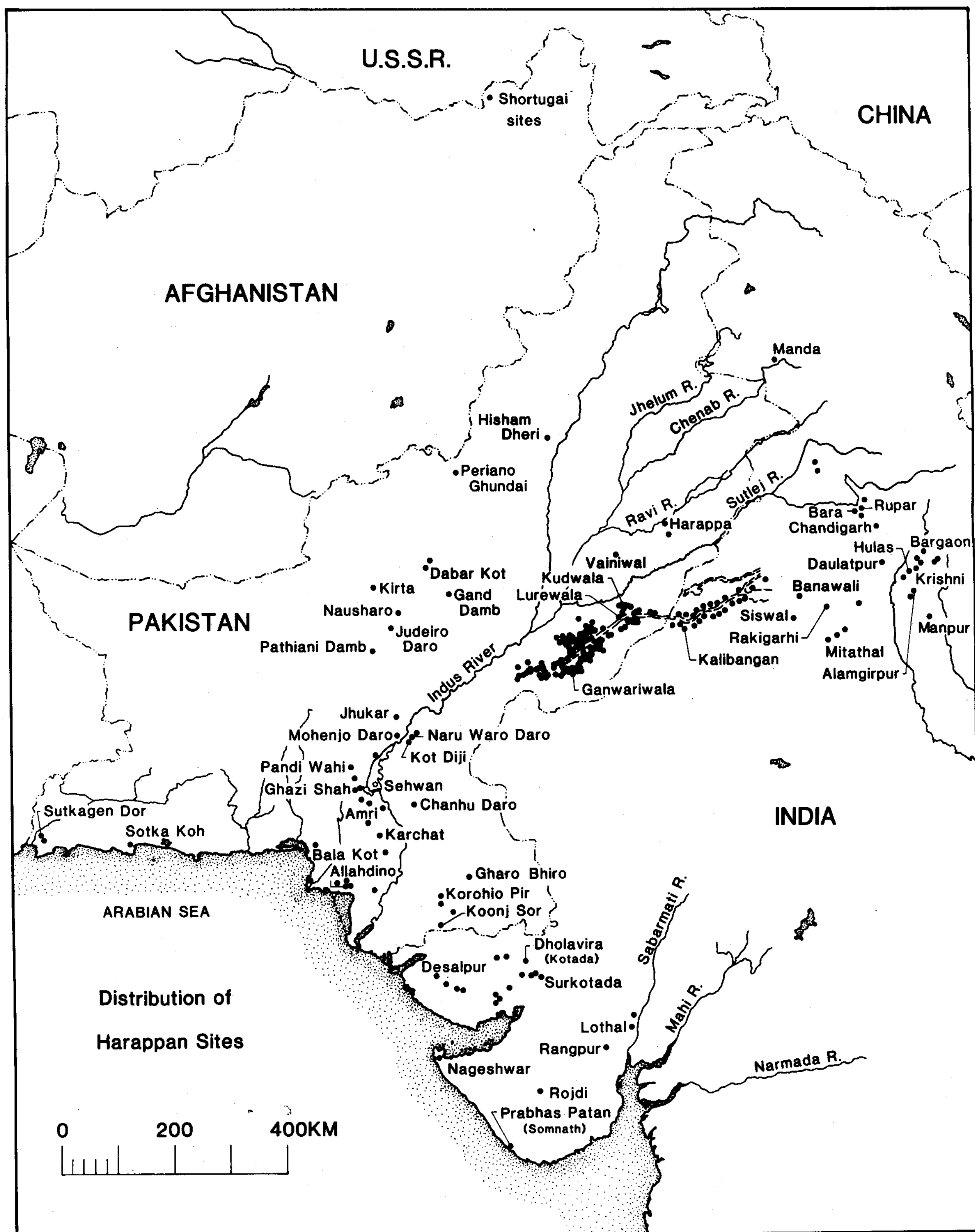


Fig. 3 Harappan Sites

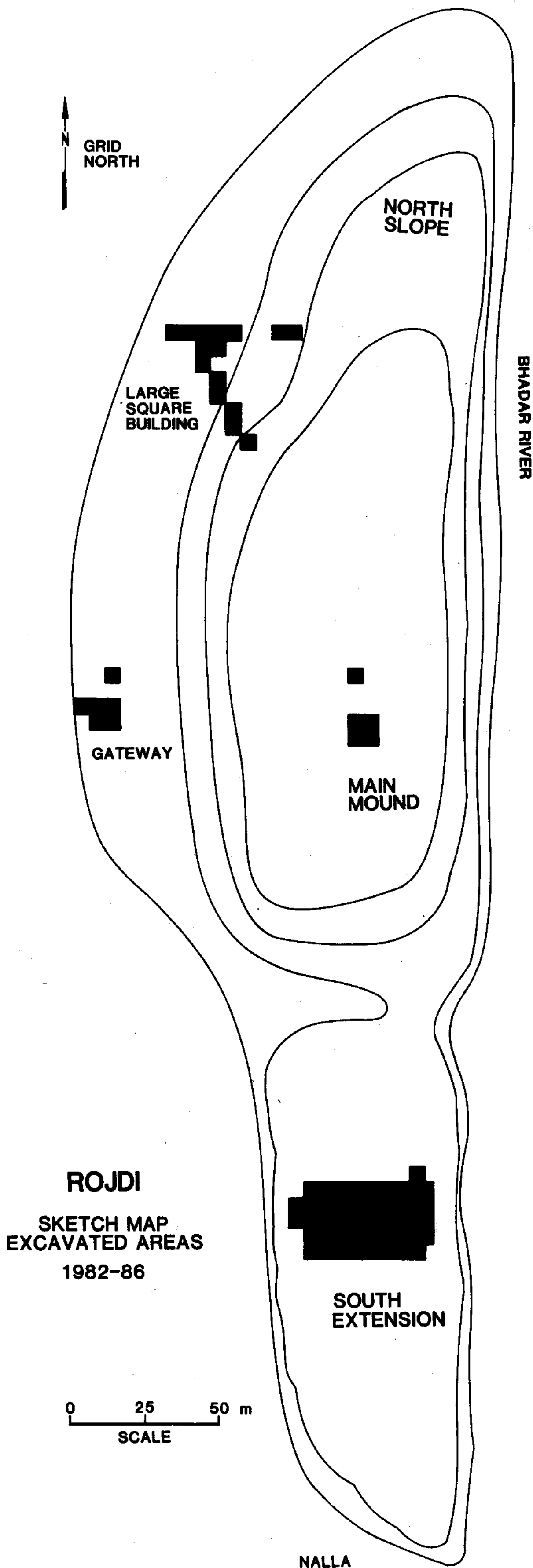
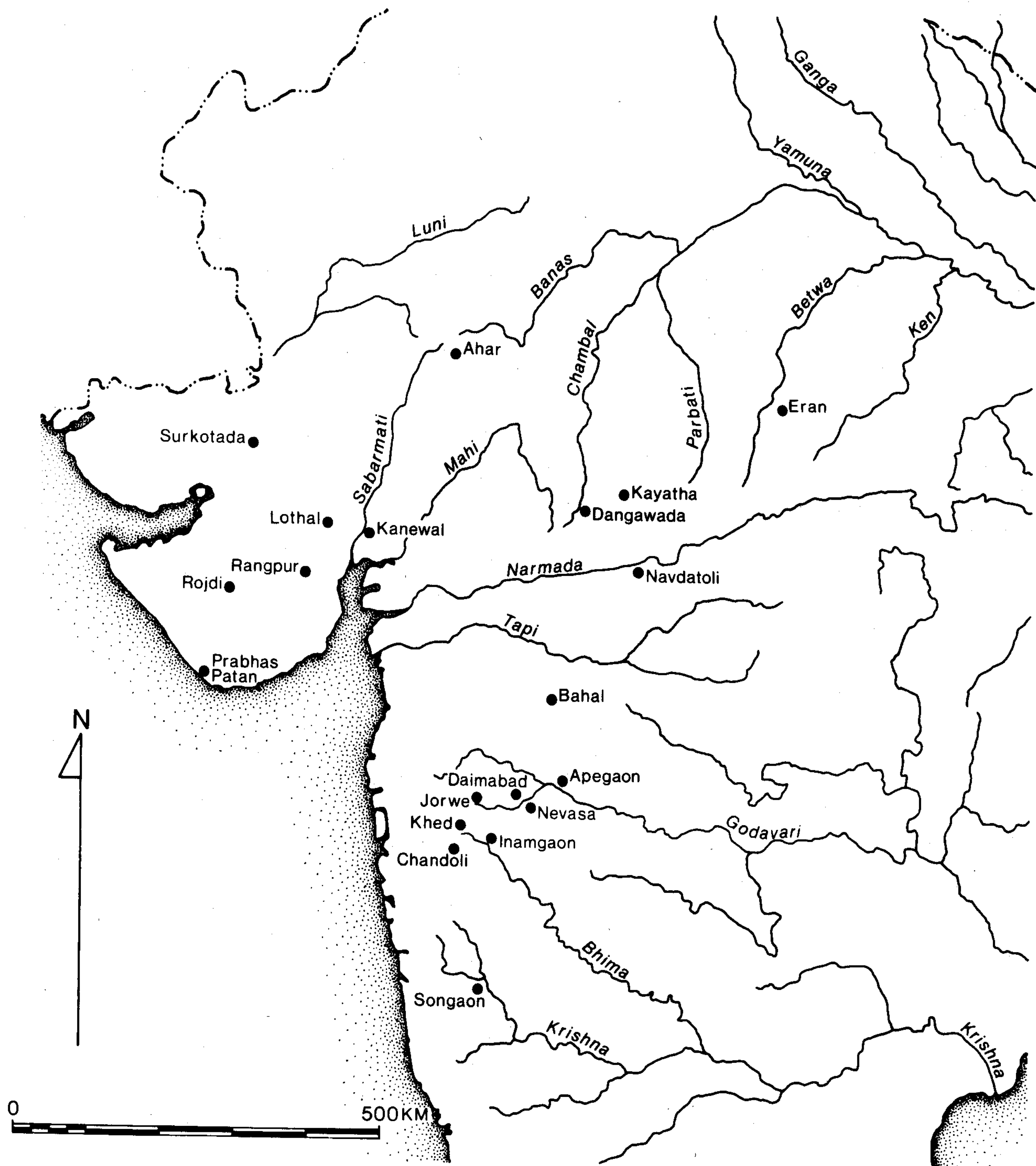


Fig. 4 Areas of excavation at Rojdi


Ganga
Yamuna
Luni
Banas
Betwa
Ken
Ahar
Chambal
Parbati
Eran
Surkotada
Sabarmati
Mahi
Kayatha
Dangawada
Lothal
Kanewal
Rangpur
Rojdi
Narmada
Navdatoli
Tapi
Prabhas
Patan
Bahal
N
Daimabad
Apegaon
Jorwe
Nevasa
Khed
Inamgaon
Godavari
Chandoli
Bhima
Songaon
Krishna
Krishna
0
500KM

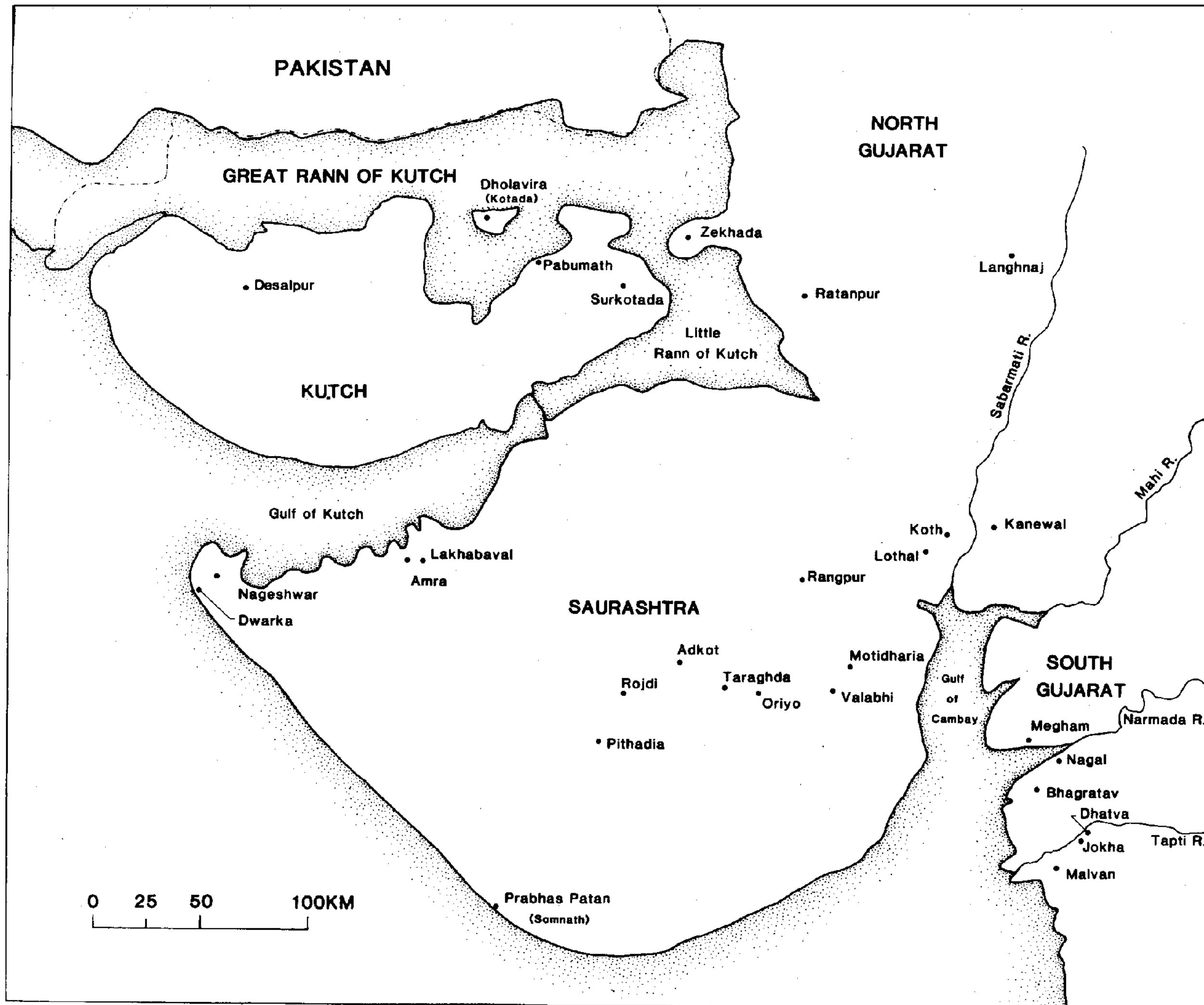


Fig. 6 Some Sites in Gujarat That are a Part of the Harappan Tradition

period of occupation at Rojdi, attributable to the initial decades of the Post-urban Phase. This plan of a Post-urban settlement in Gujarat is the largest and most significant for the region at this critical time in ancient Indian history.

There are, of course, many other insights which have come from this very profitable joint venture. For example, there is a very important body of copper-based tools from the site, which come from very well provenienced context. These and other materials are outlined and it can be expected that other insights will emerge as our analyses and thoughts progress.

There is much analysis yet to be completed, especially with the ceramics, palaeobotany and archaeozoology, and our writings are in some ways preliminary. This book should therefore be read with a sense of some qualification. Some of what is said here will be expanded upon later, in more detailed works on the site.

ROJDI: The Site and Problem Orientation

Rojdi takes its name from the Gujarati word for the female *nilgai* (*Boselaphus tragocamelus*), or Blue Bull. This is an ungulate which inhabits the Saurashtran peninsula and whose remains are a part of the osteological collection from the excavation project. The name Rojdi was also once applied to the neighboring village, now known as Srinathgadh.

The Rojdi excavation team has focused on two interrelated historical problems to give structure and direction to the work. The first relates to the chronology and nature of the Urban and Post-urban (Possehl 1977) occupations of the site, especially as related to the eclipse of Harappan urban organization. The second problem relates to an understanding of the subsistence system at Rojdi. The team has investigated the site in a way which will allow us to describe the plants and animals that were used, as well as gain some sense of the relative importance of these resources. We have also been documenting the impact of seasonality there as well as beginning the reconstruction of the ancient environment around the site. Efforts will also be made to continue work on pastoral nomadism along the lines developed by the team at Oriyo Timbo (Rissman 1985a, 1985b, 1986).

The work we have undertaken to deal systematically with these two interrelated archaeological problems will be discussed in some detail since this report offers us an opportunity to both present our findings and lay out the rationale for the project as a whole.

THE INDUS CIVILIZATION

Regions in Light of Chronology

THE CORE REGION

An interesting and important body of developing scholarship, dealing with both the chronology of the Indus Civilization, and the geography of the Pre-urban and Urban Phases, is modifying many of our basic concepts about South Asia's first urban system. Jim Shaffer has recently completed a thorough review of the chronology of the Pre-urban and Urban Harappan Phases (Shaffer in press). He has concluded that a calibrated radiocarbon calendar indicates that the transition from the "Early Harappan" (Mughal 1970) to the "Mature Harappan" (Pre-urban to Urban Phases) took place about 2600 to 2500 B.C. This research indicates that this transition in Sindh, at least, was an abrupt one; a short period of punctuated cultural change during which virtually all of the distinctively urban features of the Harappan Civilization originated. The pace and nature of this change was such that the middle centuries of the third millennium in Sindh was a cultural mosaic, with the older "Early Harappan" overlapping the Mature, Urban Phase material. Shaffer's ideas share much with the position developed in Possehl (1986b: 93-103) which begins with a consideration of what Robert McC. Adams has called the "core trends" of urbanism (1966 : 61) as they are expressed in ancient India:

1) Shifts in settlement patterns.
2) The development of public architecture.
3) Inferences concerning social differentiation.
4) The development of writing and other related features.
5) The cultural unity of the Indus Civilization.
(Possehl 1986b: 95-6)

When the Pre-urban Harappan Phase is compared with the Mature, Urban Phase in terms of these variables the following can be observed:

> . . . the Early Harappan seems to have been devoid of anything suggesting urban development, and the transitional period preceding the emergence of the Mature Harappan must have been extraordinarily short. In other words, the development of distinctive features of the Urban Phase appears to have been a veritable paroxysm of change. If long-term trends in culture change are thought of as "ramps versus steps" (Braidwood and Willey 1962 : 351 and Adams 1966 : 17-8) there can be little doubt that the Indus case was a step : a short period of rapid, even explosive change within which virtually all of the distinctly urban features of Harappan life were fashioned (Possehl 1986b: 97).

To give an absolute chronology to this process it has been suggested that the two building levels of Amri II (Casal 1964 : 39-42) serve as a guide. This would yield a period of 150 to 200 years for the transition hypothesized for the bridge between the Pre-urban and Urban Phases(Possehl 1986b: 98).

There is also evidence that the cultural mosaic which Shaffer proposes for Sindh, was a part of the larger Harappan world throughout the third millennium. The process of culture change leading to the emergence of the Indus Civilization seems to have occurred at different places at slightly different times, within the Harappan domain. This is graphically true for Gujarat, as will be seen.

The evidence for, and understanding of, this complex sociological and historical mosaic in ancient India in the middle centuries of the third millennium is only now just emerging. There are many things left to be discovered and thought through, however, it is clear that there are good associations between Early Harappan ceramics and those of the Mature Phase at Manda (Joshi and Madhu Bala 1982), Ropar (Y.D. Sharma 1982 : 161) and possibly Kot Diji (Khan 1965). Thus, the style of Early Harappan ceramics, as isolated by M.R. Mughal (1970) is not necessarily a distinctive time marker. Moreover, radiocarbon determinations for a number of sites in the Northwest Frontier Province and western Punjab of Pakistan have been gathered by the University of Peshawar (Durrani 1986 : Figure D) as well as K.D. Thomas and F.R. Allchin (1986). These dates indicate that there are two phases of the Early Harappan ("Kot Dijian"), at least in northern Pakistan. The earlier of these two phases can be dated to ca. 3000-2500 B.C. The later Kot Dijian phase dates to 2500-2000 B.C., contemporary with the Urban Phase of the Harappan cultural tradition. This Late Kot Dijian was anticipated by both F.R. Allchin (1984) and Possehl (1984). It has been found at places like Sarai Khola, Jhang, Hathial (Thomas and F.R. Allchin 1986) and Rehman Dheri (Durrani 1986 : 348-50). It is thus increasingly clear that the northern region of the greater Indus Valley was an interwoven cultural mosaic of Urban Phase Harappans and contemporary Late Kot Dijian peoples during the last half of the third millennium B.C.

The notion of a homogenous, evenly paced, geographically widespread urbanization process in the greater Indus Valley is not being sustained as refined chronological data accumulate. Rather, the Harappan urbanization processes in Sindh, the Northwest Frontier Province, both provinces of the Punjab, Haryana, northern Rajasthan and western Uttar Pradesh appear to have been variably paced, region to region; beginning with a rapid transition in Sindh during the time range 2600 to 2500 B.C. The result of this urbanization process, even when viewed through the opaque "glass" available to us today, was a complex cultural map, with some regions dominated by the Harappan

style, and other regions or sub-regions relating to what seem to have been the older cultural traditions of western South Asia.

GUJARAT: The Published Perspective

Large scale excavations at Mature Harappan sites in Gujarat have been conducted at Lothal (Rao 1973, 1979, 1985), Rangpur (Rao 1963) and Surkotada (Joshi 1972). Smaller excavations were undertaken at Desalpur (Soundara Rajan 1984) and Pabumath by the Gujarat State Department of Archaeology (Indian Archaeology, A Review 1977-78 : 21, 1978-79 : 67-8 and 1980-81 : 14). All these are sites with the 'classic' inventory of Urban Phase Harappan materials : inscribed seals, as well as distinctive Harappan ceramics, metal work, beads, architecture and the like. We will refer to this aspect of the Indus Civilization as the "Sindhi Harappan" since it closely resembles materials from Indus sites in this region. This name is applied with caution, recalling that much is shared between Harappan sites wherever they are found and drawing attention to the Sindh region should not be taken as an inference that we do not recognize this fact. Radiocarbon determinations from Lothal and Surkotada (Table 1) can be used to suggest that the Urban Phase Sindhi Harappans settled in Gujarat, including Kutch, ca. 2500-2300 B.C.

TABLE 1
Radiocarbon Determinations for Lothal and Surkotada

	5568 Half-life	5730 Half-life	Calibrated Date
Lothal B			
TF-19	3759 ±135 B.P.	1810 B.C.	2315-1865 B.C.
TF-23	3816 ±105 B.P.	1865 B.C.	2320-1959 B.C.
Average : 2275, 2210, 2207 B.C.			
Lothal A			
TF-135	3507±125 B.P.	1555 B.C.	1950-1570 B.C.
TF-29	3850±110 B.P.	1900 B.C.	2340-1980 B.C.
TF-133	3850±110 B.P.	1900 B.C.	2340-1980 B.C.
TF-26	3945 ±120 B.P.	1995 B.C.	2425-2195 B.C.
TF-27	3955 ±110 B.P.	2005 B.C.	2425-2160 B.C.
TF-22	3960 ±110 B.P.	2010 B.C.	2430-2165 B.C.
TF-136	4032 ±130 B.P.	2080 B.C.	2655-2185 B.C.
Average : 2452, 2427, 2395, 2374, and 2366 B.C.			
Surkotada IC			
TF-1307	3510 ±105 B.P.	1660 B.C.	2000-1700 B.C.
TF-1294	3620 ± 95 B.P.	1780 B.C.	2180-1870 B.C.
TF-1311	3625 ± 90 B.P.	1780 B.C.	2180-1870 B.C.
TF-1297	3635 ± 95 B.P.	1790 B.C.	2185-1875 B.C.
Average : 1964 B.C			
Surkotada IB			
TF-1304 & 1309	3645± 90 B.P.	1805 B.C.	2190-1880 B.C.
Average : 2033 B.C.			
Surkotada IA			
TF-1295	3780± 95 B.P.	1940 B.C.	2410-2105 B.C.
TF-1310	3810± 95 B.P.	1970 B.C.	2415-2135 B.C.
TF-1305	3890± 95 B.P.	2055 B.C.	2555-2285 B.C.
Average : 2295 B.C			

Two additional dates can only be attributed to Surkotada Period I : TF-1301, 2005 ±130 B.C. (2550-2125 B.C.) and PRL-85, 2315 ± 130 (2940-540 B.C). Averages in this table and others in this paper are from the M. Stuiver computer program, distributed in 1986 (Stuiver and Pearson 1986).

The Sindhi Harappans were thought to have come to Gujarat in an effort to gain access to the material wealth of this region, and to western India in general (Possehl 1976). More will be said of this later in this report. It was also hypothesized that the Harappans represented the earliest agricultural, possibly food producing, peoples in Gujarat. Furthermore, the materials from Lothal B and Rangpur II B-C were felt to follow on the Urban Phase as a chronological series (Possehl 1980 : 40-44 and Figure 6). Much of this interpretation has changed, and the Rojdi Project has played a key role in producing new ideas about these important topics. More of this will be noted later, but we want to continue with the 'traditional' interpretation of the Harappans in Gujarat.

Rangpur II B-C was followed in time by the archaeological assemblage from Rangpur III, dominated by the distinctive Lustrous Red Ware. The middle period Rangpur II B-C material was sometimes thought of as "Late Harappan" while the Lustrous Red Ware was "Post Harappan." Whatever the terminology, the chronological and cultural continuity in this three phase sequence (Rangpur IIA, II B-C, III) was generally recognized and has been called the Harappan Tradition in Gujarat (Possehl 1977).

In 1974, and again in 1980, Possehl presented maps showing the distribution of sites from the three phases of the Gujarati Harappan (Possehl 1980 : 57-9). These maps showed an Urban Phase penetration of Gujarat through Kutch (Joshi 1972) proceeding on to Rangpur, Koth and Lothal. These latter sites were then thought to be on the southeastern border of the Urban Phase Indus "state" (Possehl 1976, 1982b). In the succeeding Rangpur II B-C phase there appeared to have been a very significant increase in the number of sites in this region, especially Saurashtra [also noted in Bridget and Raymond Allchin 1968 : 182-83]. This was thought to have been related to the introduction of *bajra* (*Pennisetum typhoideum*), *jowar* (*Sorghum bicolor*) and *ragi* (*Eleusine coracana* and *E. indica*) into the Indian subsistence economy (Possehl 1980 : 8-9, 1986; Sankalia 1980) as documented at Rangpur (Ghosh and Krishna Lal 1963), Surkotada (Vishnu-Mittre and Savithri 1982), Oriyo (Rissman 1985a : 377) and Rojdi (as follows).

The Lustrous Red Ware Period (Rangpur III) was well represented in Saurashtra, although there appeared to have been a drop in the number of settlements from the time of Rangpur II B-C. Lustrous Red Ware had been found in the highlands surrounding Gujarat at Ahar, Navdatoli and Chandoli, and it was from these places, and Lothal B, that a tentative chronology for the Harappan Tradition in Gujarat had to be fashioned (Possehl 1980 : 40-4). It should be emphasized that in 1974, and again in 1980, there were very few radiocarbon determinations for the Rangpur II B-C and III periods. It is somewhat surprising to see how little has changed on this side of the story.

The ceramics of Lothal B and Rangpur II B-C have generally been seen as comparable and representative of the initial Post-urban Phase in Saurashtra. Possehl has listed 120 sites (1980 : 60) with what he considered Rangpur II B-C ceramics, and more have been discovered since then as reported in the yearly installments of *Indian Archaeology, A Review*. Indeed, when the reinvestigation of Rojdi began in 1982-83 it was thought that the lowest levels of Rojdi might have been of the Mature, Urban Phase (Rangpur II A) but that most of the ceramics from this site were of the Rangpur II B-C period. The pottery from Rojdi was clearly of the Harappan tradition, but it lacked the key Urban Phase Harappan ceramic markers : for example, the goblet, beaker, 'S' form jar, (with the possible exception of one rather atypical example in Indian Archaeology, A Review, 1958-59 : 20, Figure 9, B, 2) and the tea cup with a perforated handle. It is also true that Rojdi has not yielded a single sherd with the Indus black on red painting style. The site has also failed to produce any of the Harappan stamp seals or the other Urban Phase Sindh Harappan paraphernalia of daily life as found at sites such as Mohenjodaro, Kot Diji, Chanhudaro or the other places against which one might measure such cultural dimensions. With the exception of one or two possible examples, Rojdi is also devoid of Lustrous Red Ware.

At the beginning of the project it was not possible for the team reinvestigating Rojdi to work with anything other than surface material, and small portions of the documented remains from the

earlier soundings there. Thus, in 1982–83, the first season of renewed work at the site, the chronology for the beginning of the settlement was largely a matter of conjecture. In fact, establishing whether Rojdi was, or was not, occupied during Urban Phase times was a part of our problem orientation during the four seasons of renewed excavations at the site.

THE NEW CHRONOLOGY FROM ROJDI FOR THE HARAPPANS IN GUJARAT

The framework just described was the set of ideas that the team used in formulating its approach to the new field work at Rojdi. The materials we have brought to light have caused us to revise a number of our ideas about Rojdi, and the Harappan Cultural Tradition in Gujarat. The first and most fundamental of these re-evaluations has been for the chronology of the site. A series of twelve new radiocarbon dates are available for Rojdi from the Physical Research Laboratory, Ahmedabad. These are presented in Table 2 (see Figure 4 for excavation areas).

Before presenting the dates a few very general words on the ceramic phases at Rojdi is in order since these have been noted on Table 2. Mr. Frank Herman, the person charged with the primary analysis of the Rojdi pottery has prepared a full statement for this report. His analysis of the pottery is still incomplete, therefore the information in this report will have to be provisional. Mr. Herman speaks of three ceramic phases at the site (Rojdi A, B and C). The earliest Rojdi A is quite similar to the pottery of Rangpur IIA, but the distinctive Indus painting style is absent and some of the key vessel forms of the Urban Phase Harappan are variants of what we know of from places like Mohenjodaro, Chanhudaro, or even Surkotada (for example, the tea cup with a perforated handle and the 'S' profile jar). Rojdi C, the upper levels of the site, has pottery that is characteristic of the early Post-urban. Rojdi B is then the late Urban Phase at the site. Mr. Herman's report will give the reader much more detail in this matter.

TABLE 2
New Radiocarbon Dates from Rojdi

5568 Half-life	5730 Half-life	Calibrated Date
Rojdi Main Mound (Trench 45K), Middle levels (Rojdi B?)		
PRL-1088 3770±125 B.P.	1930 B.C.	2420–1980 B.C.
Rojdi Main Mound (Trench 45K), Lower levels (Rojdi A)		
PRL-1089 3865±115 B.P.	2030 B.C.	2640–2150 B.C.
PRL-1093 3920±105 B.P.	2090 B.C.	2645–2310 B.C.
PRL-1087 4010±105 B.P.	2180 B.C.	2680–2515 B.C.
PRL-1085 4020±105 B.P.	2190 B.C.	2680–2515 B.C.
Average for Lowest levels: 2469 B.C.		
Rojdi Main Mound (Trench 46L), Middle Levels (Rojdi B)		
PRL-1282 3470±140 B.P.	1620 B.C.	2000–1665 B.C.
PRL-1281 3520±110 B.P.	1680 B.C.	2015–1710 B.C.
Rojdi Main Mound (Trench 46L), Lower Levels (Rojdi A)		
PRL-1285 3740±140 B.P.	1900 B.C.	2410–1945 B.C.
PRL-1284 3810±100 B.P.	1980 B.C.	2415–2135 B.C.
PRL-1283 3980±100 B.P.	2140 B.C.	2660–2385 B.C.
Rojdi South Extension (Trench 76L), Upper Levels (Rojdi C?)		
PRL-1084 3700±145 B.P.	1860 B.C.	2350–1890 B.C.
Rojdi South Extension (Trench 76L), Lower levels (Rojdi B?)		
PRL-1083 3875±125 B.P.	2040 B.C.	2640–2160 B.C.

These new dates from Rojdi are not significantly different from two other dates gathered as a part of the 1962/63 season of work at the site (Table 3).

TABLE 3
Old Radiocarbon Dates from Rojdi

	5568 Half-life	5730 Half-life	Calibrated Date
Rojdi Trench B, Period I, Phase B, 1962/63 season			
TF-200	3810±110 B.P.	1975 B.C.	2415–2135 B.C.
Rojdi Trench C, Period I, Phase B, 1962/63 season			
TF-199	3590±110 B.P.	1745 B.C.	2160–1850 B.C.

THE EMERGENCE OF A NEW PERSPECTIVE ON HARAPPANS IN GUJARAT

The new radiocarbon dates from Rojdi A and B place most of the period of occupation there fully within the time period of the Urban Phase Harappan. The dates compare well with those from Lothal A and the three phases of occupation at Surkotada and are fully congruent with the chronological data for the date of the Urban Phase in Sindh and Punjab (Shaffer, in Press, Agrawal 1982a, 1982b), even recognizing the fact that there seems to be a complex cultural mosaic of cultures in the vicinity of 2600 to 2400 B.C. in Sindh (Shaffer and Lichtenstein, in press).

While it appears that most of the occupation at Rojdi falls within the Urban Phase, the material inventory of the site is clearly not of the Mature Harappan, at least as we know it from Mohenjodaro, Chanhudaro and other sites in Sindh, or even Lothal and Surkotada, within Rojdi's region. But, the material inventory of Rojdi A and B does seem to be shared with a number of other sites in Saurashtra. Many, possibly most, of the 120 Rangpur II B-C sites listed in Possehl (1980 : 89–119) would fall into this category, for example.

It appears that Rojdi, and many other sites in Saurashtra, and possibly north Gujarat as well, represent a newly discovered regional expression of the Harappan Urban Phase. We propose to call this new regional Urban Phase "culture" the "Sorath Harappan," drawing on one of the ancient names for Saurashtra. It is stylistically divergent from the Sindhi Harappan as it is known from the Urban Phase sites in Kutch and Sindh, even the Punjab, but it is clearly a part of the Harappan larger cultural whole. If judged from the most preliminary evaluation of the Sorath Harappan it also appears to be less internally differentiated than what we know of the Urban Phase Harappan elsewhere. The Post-urban Phase in Gujarat might now be called the "Sorath Post-urban Harappan."

THE SORATH HARAPPAN

Sites of the Sorath Harappan are generally quite small. In fact, Rojdi at approximately 7 hectares is the largest settlement that is known, if one rules out places with obvious signs of lateral stratigraphy. The average site size can be estimated at 5.3 hectares (Possehl 1980 : 65), suggesting little range in settlement dimensions as well. Second, the material inventory of the sites is simple, if compared to sites in other Urban Phase regions. There are no stamp seals, very little writing (one sherd from Rojdi has an inscription, see Plate 2), ornaments are not abundant, architecture is not elaborate, although there are foundations at the site of Somnath which may be those of a public building (Indian Archaeology, A Review 1975–76 : 13). There are circumvallations around some settlements, including Rojdi. Human burials from the entire range of Indus sites in Gujarat are rare, giving us little by way of an insight into the Sorath Harappan from this important data set.

The ceramics for the Sorath Harappan present us with a challenge on which the team is currently working. The principal scientist in this effort is Frank Herman, who has given us a preliminary summary on his work in progress, which is a part of our overall report (see below).

Herman's task is essentially three fold; First, he must understand the Rojdi ceramic sequence, its internal variation and development. He will then take the insights that come from this synthesis and isolate the Sorath Harappan at other sites, beginning to re-write the comparative stratigraphy of the Chalcolithic in Saurashtra. Finally, his work will allow us to separate the Sorath Harappan from the Lustrous Red Ware Phase, admitting for the moment the possibility that there is a separate "linking" chronological/ceramic phase between the two.

The discovery of the Sorath Harappan gives us a potential insight into another of the problems in the Saurashtran Chalcolithic sequence. This came to us from the site of Somnath, at Prabhas Patan on the coast of the peninsula (Figures 5 and 6).

THE SOMNATH CONNECTION

In the early and mid-nineteen-seventies, Deccan College and the Gujarat State Department of Archaeology began the reinvestigation of the site of Somnath (Indian Archaeology, A Review 1971-72, 1975-76 and 1976-77; Sankalia 1972). This site had been excavated at an earlier date (Nanavati, Mehta and Chowdhary 1971). In the course of the renewed excavation, eight radiocarbon determinations were secured (Table 4).

TABLE 4
Radiocarbon Dates for Somnath

5568 Half-life	5730 Half-life	Calibrated Date
Somnath Period III, Lustrous Red Ware Period		
PRL-19 3100±160 B.P.	1245 B.C.	1590-1230 B.C.
PRL-20 3340±105 B.P.	1490 B.C.	1775-1550 B.C.
PRL-91 3860±165 B.P.	2025 B.C.	2560-2145 B.C.
Average : 1733, 1722 and 1695 B.C.		
Somnath Period II, Prabhas Period		
TF-1284 3465±95 B.P.	1620 B.C.	1955-1695 B.C.
TF-1286 3595±90 B.P.	1755 B.C.	2160-1850 B.C.
PRL-92 3830±95 B.P.	1995 B.C.	2425-2155 B.C.
Average : 2026, 1995 and 1986 B.C.		
Somnath Period I, Pre-Prabhas Period		
PRL-90 4240±110 B.P.	2415 B.C.	3035-2780 B.C.
TF-1287 4280±105 B.P.	2460 B.C.	3065-2860 B.C.
Average : 2904 B.C.		

The Period I, Pre-Prabhas dates are the earliest for a fully food producing economy in Gujarat. In fact, excepting the dates from Bagor in Rajasthan (Misra 1973) and Adamgarh Cave in Central India (Joshi 1978), sites with a herding component integrated into an otherwise hunting and gathering subsistence economy, the Somnath dates are the earliest for a food producing economy within the bounds of the present Indian nation (see Possehl and Rissman, in press for a critique of this point, especially the material from Koldihwa and other sites in the mid-Ganges Valley). They certainly antedate the Banas Culture of southern Rajasthan, along with the Kayatha, Malwa and Jorwe complexes of Central India and their suggested predecessors (Dhavalikar 1970). In fact, to the excavators the dates for Somnath I seemed to be unacceptably early when they first appeared (Agrawal 1982a : 193).

The Pre-Prabhas ceramics can be divided into two typological groups. The predominant material is handmade, rather coarse wares, including black and red wares, one of which is

burnished. Along with these wares are others which are closer to the ceramics of the larger Harappan pottery tradition: dense, well levigated red and buff wares. This second body of Pre-Prabhas pottery thus has an "affinity" with pottery found in the greater Indus Valley and Baluchistan.

The dates from Rojdi, and the emergence of the Sorath Harappan, suggest that large numbers of "Harappans" were present in Gujarat at an earlier date than had been previously expected. The old idea is that during the Urban Phase small numbers of Harappans migrated to Saurashtra from Sindh. A new possibility, given the fact that Rojdi A and B are different from the Sindhi Urban Phase Harappan, is that there is a line of development up in time from Pre-Prabhas Somnath, beginning about 3000 B.C., which yields archaeological assemblages of the Rojdi A and B type. Of course this is an historical and processual area which does not have to be an 'either/or' choice. Complex, possibly intense, sociocultural interaction between the protohistoric peoples of Gujarat, Sindh, Rajasthan and the Punjab are more than likely to have taken place. The new data suggest only that the dates from the Pre-Prabhas levels of Somnath need not be considered unacceptably early and may in fact be a key to understanding the complex nature of cultural development and change in ancient Saurashtra. This situation calls for new, intensive exploration that should be directed toward the discovery of other sites with the Pre-Prabhas component, promoting the investigation of these early farming and herding sites in Gujarat.

THE HARAPPANS IN GUJARAT : AN OVERVIEW

What is emerging from the research at Rojdi is that there are two kinds of "Harappans" in Gujarat during the third millennium. The first of these is represented by Rojdi A and B, and probably the early Rangpur sequence as well (the Sorath Harappans). The second has been unearthed at places like Desalpur, Surkotada and Lothal, representing the Sindhi Harappans.

The presence of this "Sindhi Harappan" in Saurashtra seems to have come about as a migration through the Kutch border area at about 2500 B.C. It is not known whether the Ranns of Kutch were wholly dry in the Harappan era, or were arms of the sea, or like their present state, wet for part of the year and dry for the rest (Gupta 1977; Roy and Mehr 1977). Settling this issue is obviously an important problem in Harappan archaeology. The density of Urban Phase Sindhi Harappan sites in Kutch (Joshi 1972) is important to understanding the Indus Civilization in Gujarat since they form a distinct cultural and chronological horizon there.

It is worth noting that at the time of the Urban Phase Sindhi Harappan migration into Gujarat there was an indigenous hunting and gathering population present in the region beside the Sorath Harappans. Some of these groups might have controlled domesticated animals, as at Bagor in southern Rajasthan (Misra 1973). Sites like Langhnaj (Sankalia 1964) and Kanewal (Mehta, Momin and Shah 1980) document the presence of hunter/gatherers in the region ca. 2200–1800 B.C. Relations between these indigenous hunter/gatherers and the Harappans were not homogeneous as can be seen in the variable nature of the settlement geography in prehistoric Gujarat. The Urban Phase sites in Kutch tend to be citadel-like, with evidence of defenses. This suggests that they had to defend themselves from the surrounding peoples. Such a situation can be illustrated at Surkotada, with its massive limestone wall and bastions. Places like Lothal and Koth are "open" settlements in the Urban Phase, suggestive of a different "political" climate there. In fact, significant "cooperative"economic relationships between the inhabitants of Lothal and indigenous hunting and gathering peoples have been suggested (Possehl 1976).

LOTHAL : The Harappan Migration and Commerce

A number of years ago (Possehl 1974 : 195–238) it was proposed that Lothal was established as a gateway settlement (Burghardt 1971) on the southeastern border of the Sindhi Harappan political

domain. From this settlement, and possibly others, the Urban Phase Sindhi Harappans were able to gain access to the raw materials of peninsular India. It was also suggested that the indigenous hunting and gathering peoples, exemplified at places like Langhnaj, were Sindhi Harappan agents in this regard. It was these non-Harappan peoples who were intimately familiar with the regional landscape. They are hypothesized to have brought the raw materials, especially the wide array of semiprecious stones in the region, to Lothal, and possibly other trading centers, where they were exchanged for Sindhi Harappan manufactured goods. This is still a viable proposition. It is an effective tool for understanding both the location and internal organization of Lothal and gives us a motive for the Sindhi Harappan migration and settlement in parts of Gujarat. The Urban Phase Sindhi Harappans came here because they wanted, or needed, access to increased supplies of raw materials to be found in Gujarat and peninsular India. We propose that this demand was generated by the peoples of the Harappan Civilization for their own use, as well as for foreign commerce. This latter source of demand may have been much greater than traditional views of the Harappan economy have suggested (Possehl 1986b : 88–99).

Many of the materials which are found in Gujarat and the adjacent parts of peninsular India have been found in archaeological context at Lothal and the other Sindhi Harappan sites: carnelian, a wide range of other agate stones, rock crystal, chert, jasper, steatite (or one of the related soft stones), ivory, and sea shells including chank and dentalium. We will even add the metals, copper and gold to this list since they are found at Lothal and may well have come there in the form of ore, or semirefined ingots, through the entrepreneurial efforts of the regional hunters and gatherers.

These exotic materials occur at Lothal in some quantity. At the so-called "bead factory" S.R. Rao tells us; "Two earthen jars containing more than 600 beads of gemstones in various stages of manufacture were found embedded in the working platform . . . " (Rao 1973 : 68). Possibly the two most impressive aspects of Lothal are: (1) the wide range of materials that have been found there, and (2) the number of manufacturing or modification activities that can be documented at the site from the materials themselves, the waste products, manufacturing paraphernalia (ovens, crucibles, drills, etc.), partially finished goods and others broken or spoiled in the process of manufacture.

Given the relatively small size of Lothal, approximately 5.5 hectares, all of this manufacturing and commercial activity far outstripped any reasonable estimate for the needs of the Lothal inhabitants. This fits well with the proposed outpost function of the site. It was there as a procurement and trading center; a sort of ancient Hudson's Bay Trading Post. The market centers for the raw materials, and some of the finished products that were made at the site from locally procured items, were in the Harappan centre Sindh and the Punjab with the grand metropolitan populations at Mohenjodaro, Harappa and the rest. The Urban Phase Sindhi Harappan sites in Kutch, then emerge as places intended to secure the connecting corridor between these regions. This joining of Gujarat and Sindh bespeaks a form of interdependence. This kind of mutual reliance may be significant when the eclipse of the Harappan Urban Phase is considered, since it gives us reason to project causes and effects generated in one region affecting surrounding areas.

Commerce and the Post-urban Phase in Gujarat

An overall deterioration in the Urban Phase Harappan political economy may have had a serious effect on a region like Gujarat. Outlets for goods might have been radically altered, or removed altogether. Food supplies could have been compromised. The integrated system of control and regulation that led to the identity of the Harappan Civilization, that defined it as a bounded social and cultural entity, could have been disrupted, even largely destroyed. Thus, changes in the northern domains of the Harappan region might have radically compromised Gujarat's ancient economy leading it along the path taken by other regions of the civilization in the manner of a "domino effect."

The Need for Further Research in Gujarat

It should be emphasized that much of what has just been proposed concerning the Harappan eclipse is far from certain. Conditions and events in Gujarat could have played a key role in the Harappan eclipse. It has been postulated that changes in the Ranns of Kutch led to conditions that effectively cut Gujarat off from the rest of the Harappan domains (Roy and Mehr 1977; Gupta 1977). Disruptions in the subsistence system, possibly related to the integration of millets into the Saurashtran economy, have also been considered (Possehl 1986a). With these and other possibilities in mind we are pursuing this theme at Rojdi in a way which will allow us to isolate and investigate such locally based conditions as may have impinged directly on Indus culture history. As will be seen, much of this has turned out to relate to a clarification of the architectural and ceramic history of the site during the Post-urban Phase, since this is surprisingly vague at Post-urban settlements in Gujarat.

THE ROJDI RESEARCH DESIGN

While many new things have been discovered at Rojdi these new findings have not led us to abandon the original research objectives. These goals have been expanded, in the sense that we have a number of new and interesting issues that our data set can address, but our original plan of investigating the eclipse of Indus urbanism, and the Rojdi subsistence economy remain intact. There is a Post-urban Harappan in Gujarat: Rojdi C and the Lustrous Red Ware sites. Rojdi remains an important historical environment in which the processes leading to the eclipse of Indus urbanism in Gujarat can be studied. A general review of the Post-urban is in order since it is a complex matter, in which there is need of clarification.

THE ECLIPSE OF THE INDUS CIVILIZATION

The archaeological understanding of the eclipse of the ancient cities of the Indus has gone through a number of episodes over the years since 1921 when Mohenjodaro was first excavated. Sir John Marshall was almost silent on this issue, but his colleague and successor at the site, E.J.H. Mackay was clearly inclined to see the vagaries of the Indus River as his culprit. Other thoughts on the eclipse of the ancient cities of the Indus are available. These are reviewed in some detail in Possehl (1977) where the notion of Pre-urban, Urban and Post-urban Phases of the Harappan Cultural Tradition is also developed.

THE URBAN AND POST-URBAN PHASES

The concept of the Urban Phase is wholly congruent with Walter Fairservis' Mature Harappan (1961; 1967) and the subject matter of Sir Mortimer Wheeler's *The Indus Civilization* (1968). This is the period during which the cities of Mohenjodaro and Harappa were fully functioning metropolitan centers. It is the period within which we can expect to find an Harappan state with widespread specialized craftsmanship, marked social differentiation and the like. "Urban Phase" is not a chronological unit which can be applied in a simple way to all parts of the vast geography encompassed by the Indus style. It does mark a time period, but this varies from place to place in terms of both its beginning and its end. Much more needs to be known of this chronological variation, as we have already indicated. But, it is clear that the Urban Phase in Sindh is chronologically and culturally more complex than we suspected (Shaffer and Lichtenstein, in press) and that this is not necessarily paralleled in the Punjab or Gujarat. The term "Urban Phase" was selected since it carries with it the notions of city life, statehood and social differentiation developed by Robert McC. Adams (1965; 1966; and Adams and Nissen 1972) and others.

The concept of a Post-urban Harappan (Possehl 1977) was developed to encompass the phase in the history of the Indus Cultural Tradition which follows Urban times and is presumably a reflection of the process of change through which this civilization went at the beginning of the second millennium B.C. It is intended to replace the much abused, misunderstood and confusing term "Late Harappan." The first approximation to a definition of the Post-urban Phase can be made by noting the archaeological assemblages which it encompasses; (1) in Sindh it is the poorly known Jhukar material, (2) in the Punjab and adjacent areas to the east it is the Cemetery H complex [which may now extend to Swat (Stacul 1984)], Siswal C as defined by Shaffer (1981, 1986), Mitathal IIB, and the OCP complex, and (3) in Gujarat it is the Rangpur III material, and possibly other assemblages not yet confidently isolated. There is a great deal of excavated material in northwestern India that pertains to the Post-urban Phase. Much of this is discussed by K.N. Dikshit (1970; 1971-72; 1979a; 1979b; 1979c; 1982a; 1982b; 1984) and Shaffer (1981, 1986).

The ceramics of the Post-urban Phase can be defined in the following terms. First, the pottery is clearly within a larger Harappan tradition of ceramic production, but the key markers of the Urban Phase are missing. The most important of these are the 'S' profiled jar with a flanged rim, the Indus goblet, beaker and "tea cup." Painted motifs are also different. The distinctive Urban Phase black on red slip decoration with elaborate designs including bands of fish scales and/or intersecting circles, peacocks in wooded scenes and the like are gone. This is replaced by a far less elaborate painting style, generally limited to simple black bands, loops, circles and a few animals.

Other artifact classes also change in the Post-urban Phase. For example the distinctive square Indus stamp seal with formal writing and an accompanying device are no longer made. Occasional stamp seals are found, as at Daimabad (Sali 1982; Pl. 15-4). In fact, the entire Indus script disappears as an integrated writing system. Occasional signs written on pottery, graffiti-like, are found. There is, however, one multi-sign inscription on the rim of a pot sherd from Daimabad (Sali 1982 : 15-5; 1986 : 505-11), which may be of the Post-urban Phase. Micro-beads in steatite are part of the Post-urban Phase inventory in Gujarat, as is copper-based metallurgy. Many of these tool types are of the Urban Phase type.

THE POST-URBAN HARAPPAN: The Degree of Culture Change

The nature of the Harappan Post-urban Phase has been a focus of scholarly interest since the discovery of the ancient cities of the Indus in 1924 (Marshall 1924). It is important, we believe, to say something about the effect that the eclipse of Harappan urbanism seems to have had on ancient Indian history, because it has a significance for the understanding of larger issues.

The "ramp and step" notions of culture change have already been mentioned in this report. These can serve to highlight the obvious fact that the pace of culture change is rarely uniform, even if long periods of time are used to sense an average in the matter. Thus, the concept of a "collapse" of sociocultural systems that are highly internally differentiated and specialized is only one part of a continual process of change and readjustment that humans undergo wherever they are. Viewed from this perspective the emergence of the Harappan Post-urban Phase need not be examined as a unique, or mysterious phenomenon, but as an example of historical process generally, within which the comparative method may be employed in problem solving.

There are many parallels in other parts of the world to which the Harappan "eclipse" might be compared. The Maya of Mesoamerica are a good example. In fact, the study of Maya culture history, and the insights that New World archaeologists have had into urbanism and the Post-classic Maya period, may serve Indus archaeologists well (Sharer 1982). Similar processes of change took place in Mesopotamia. In his discussion of the Neo-Babylonian to Late Islamic periods in Iraq, Robert McC. Adams draws our attention to the following: "But then, corresponding to the somewhat similar reversal during the second millennium B.C., . . . seemingly well integrated systems fragmented

before a growing array of political, economic, and ecological disorders. The basis for an urban mode of life subsequently was eliminated for centuries . . . " (Adams 1981 : 175). Similar cycles of "boom and bust" in the American west of the nineteenth century also can be noted, as can similar phenomena in West Africa (Alpers 1969; Alagora 1970; Miller 1970 and Mellassoux 1971).

It is difficult for archaeologists to quantify culture change, so what follows must be taken as an extraordinarily preliminary statement. It seems to us that whatever happened in ancient India with the emergence of the Post-urban Phase in the opening centuries of the second millennium had a profound and lasting impact on the peoples there. This was not one segment in a short-term cycle of "boom and bust". Nor does it seem to have been comparable to the cyclical perturbations of Mesopotamia as noted above by Adams, no matter what their duration. Whatever happened had a very long-term effect. It may be that urbanism did not re-establish itself in Sindh until the Arab Period in the eighth century A.D. In Gujarat the state re-emerges in the third century B.C. with the Mauryans and the same is true for the Punjab. Thus, it is two thousand years, by rough calculation, between the end of the Mature Urban Harappan and the re-establishment of urban environments and state polities in western India and Pakistan. It should also be noted that the roots of this second ancient Indian urban/state genesis would seem to lie outside the traditions of the Harappan Civilization and are thus quite independent of it (Erdosy 1985). The so-called "Second Urbanization" of north India is not to be seen as a process involving the institutions of the Harappan Urban Phase, because it lies well outside this sociocultural environment.

Another way to measure the phenomenon under consideration might be to look to the ancient literature of India to see if traces of the Harappans can be found there. This could be seen, for example, as an early remembrance in folk literature of a "golden age" of kings and cities in Sindh and the Punjab, or in a folk tradition with a "long forgotten, misty civilization" in India and Pakistan which pre-dates the Aryans. No one has ever conducted a systematic investigation of this kind, and it could be important, but our joint knowledge of the sources for such information has led us to believe that such a reference to the Harappans, no matter how vague, is not a part of the ancient Indian literature of either north or South India. Contacts with at least two other scholars have borne similar negative results (David Mc Alpin 1981, personal communication; A.K. Ramanujan 1985, personal communication).

There are thus a number of reasons for us to suggest that the process of change that the Indus Civilization underwent between ca. 2000 and 1800 B.C. compromised this sociocultural system in a profoundly fundamental way. Fundamental enough, that not withstanding the obvious signs of cultural continuity between 2000 and 500 B.C., (see F.R. Allchin 1982, 1985 for statements on continuity) the Harappan cultural tradition as an integrated civilization, as a sociocultural system which could regenerate urban structures and a polity governed by a state, was lost, and lost forever.

THE POST-URBAN HARAPPAN: Chronological Issues

While the Post-urban Harappan corresponds in a very approximate way to a chronological period, it is no longer safe to assume that the process of transformation characterizing the shift from Urban to Post-urban was either simultaneous or evenly paced in all regions of the civilization. Nor was the outcome of this process of change one which appears to have been homogeneous. For example, the changes in Gujarat seem to have resulted in a very broad based adaptation to a mixed subsistence economy involving both pastoralism and agriculture. In Sindh the absence of settlements suggests something quite different, and not at all well understood. Farther to the north in the Punjab, Haryana, northern Rajasthan and western Uttar Pradesh, the Post-urban Phase is characterized by village farming communities, some of which are quite large for this class of settlement. The timing of change, its pace and outcome are all features of marked cultural diversity with the emergence of the Post-urban Harappan.

THE POST-URBAN HARAPPAN: The Raikes/Dales Hypothesis

In recent years the Indus River has re-emerged as a dynamic factor in this process of Harappan culture change. This is largely due to the work of Robert Raikes (1964; 1965; 1967a; 1967b; 1968; 1979); Raikes and Dales (1977; 1986); Dales (1965a; 1965b; 1965c; 1966) and Dales and Raikes (1968). They hypothesize that the waters of the Indus River were impounded by a natural dam across the river in the vicinity of Sehwan (Figure 3) and that Mohenjodaro, and other sites in the vicinity, were so disrupted that it led to, actually 'caused,' the abandonment of the city and the eclipse of the Mature Urban Phase. To support this proposition they claim that the "normal behavior of a big river simply cannot account for the evidence of massive flooding at Mohenjo-daro" (Raikes and Dales 1986 : 33). Others, notably the geographer H.T. Lambrick (1967) and the geomorphologist R.J. Wasson (1984, 1987), dispute this claim, even following the presentation of long called-for data on the sediments (Raikes and Dales 1986; Wasson 1987). While there is some evidence to support the Raikes/Dales hypothesis, most in local geological history, there is no compelling geophysical evidence from the city of Mohenjodaro, or the Indus Valley itself to support their position. Some suggestions on what kind of geological evidence might be looked for have been offered (Possehl 1967).

The second point of disagreement lies in the consideration of historical process, and what archaeologists should take as an explanation. This is not the place for a discussion in the philosophy of science or history but it is reasonable to suggest that even if the waters of the Indus River had been impounded as Raikes and Dales propose, the historical consequences would have been different from those they suggest. Moreover, if the Harappans succumbed to new and unpredicted riverine forces the explanation we seek as historians and social scientists, lies not directly with geomorphological matters, but rather with the internal structure of the Harappan sociocultural system. In other words, the "flaw" that would have led to such catastrophic sociocultural change is not to be found within the natural world of geomorphology but within the human context of the Harappan Civilization; its society and culture. This is discussed in more detail elsewhere (Possehl 1967 : 37-9). This hypothesis has also been critiqued as in Agrawal (1971: 215-20 and 1982a: 188-90).

THE POST-URBAN HARAPPAN: Wheeler's Historical Explanation

Another 'theory' concerning the eclipse of the Harappans was ably stated by Sir Mortimer Wheeler (1947 : 78-83). He held that the Rig Veda could be read in part as a historical document and that the conflicts described there were between what he thought of as newly arrived Aryan warriors and the indigenous Harappans. This can be objected to on a number of grounds; chronological, cultural, historical, etc. For example, the chronology of the Aryans in South Asia is far from settled (Allchin 1982). Therefore, no one should presume that they were, or were not, active participants in the matter at hand. Also, Dales (1964) convincingly argues that the skeletons found in the upper layers of Mohenjodaro are actually hasty interments, not the remains of victims of a massacre. Finally, the historical content of the Rig Veda has not yet been even outlined, let alone convincingly defined. While there is a reasonable supposition that there is important historical information in these otherwise liturgical texts, just where within them this is to be found and how significant this history might be, are still unsettled matters.

In the end it is fair to say that there is no single 'theory' to explain the eclipse of the ancient cities of the Indus. This is not to say that there are uninteresting data which may well bear on the problem.

THE POST-URBAN HARAPPAN: New Data from the Old Sarasvati

Archaeological research along the now dry beds of the ancient Sarasvati and Drishadvati Rivers

(Figure 7) (Stein 1942; 1943; Ghosh 1953; 1959; Mughal 1978; 1980a; 1980b; 1980c; 1982; 1984 and Francfort 1986) have led to the discovery of a large number of archaeological sites. M.R. Mughal's findings on the Pakistan side of the border (Figure 8) represent one of the most impressive archaeological feats of this century in the subcontinent. When placed within the context of the distribution of Harappan sites generally (Figure 3) they lead one to suspect that Bahawalpur may well have been the Harappan "bread basket".

Mughal's data are the most amenable to quantification at the moment and we will illustrate a long-term trend in settlement counts using his materials. The data are given below in Table 5:

TABLE 5
Bahawalpur Sites by Period

ca. 4000-3000 B.C.	Hakra Wares	32 sites
ca. 3000-2500 B.C.	Early Harappan	41 sites
ca. 2500-2000 B.C.	Mature Harappan	166 sites
ca. 2000-1000 B.C.	'Late' Harappan (Cemetery H)	72 sites
ca. 1000-500 B.C.	Painted Grey Ware	10 sites

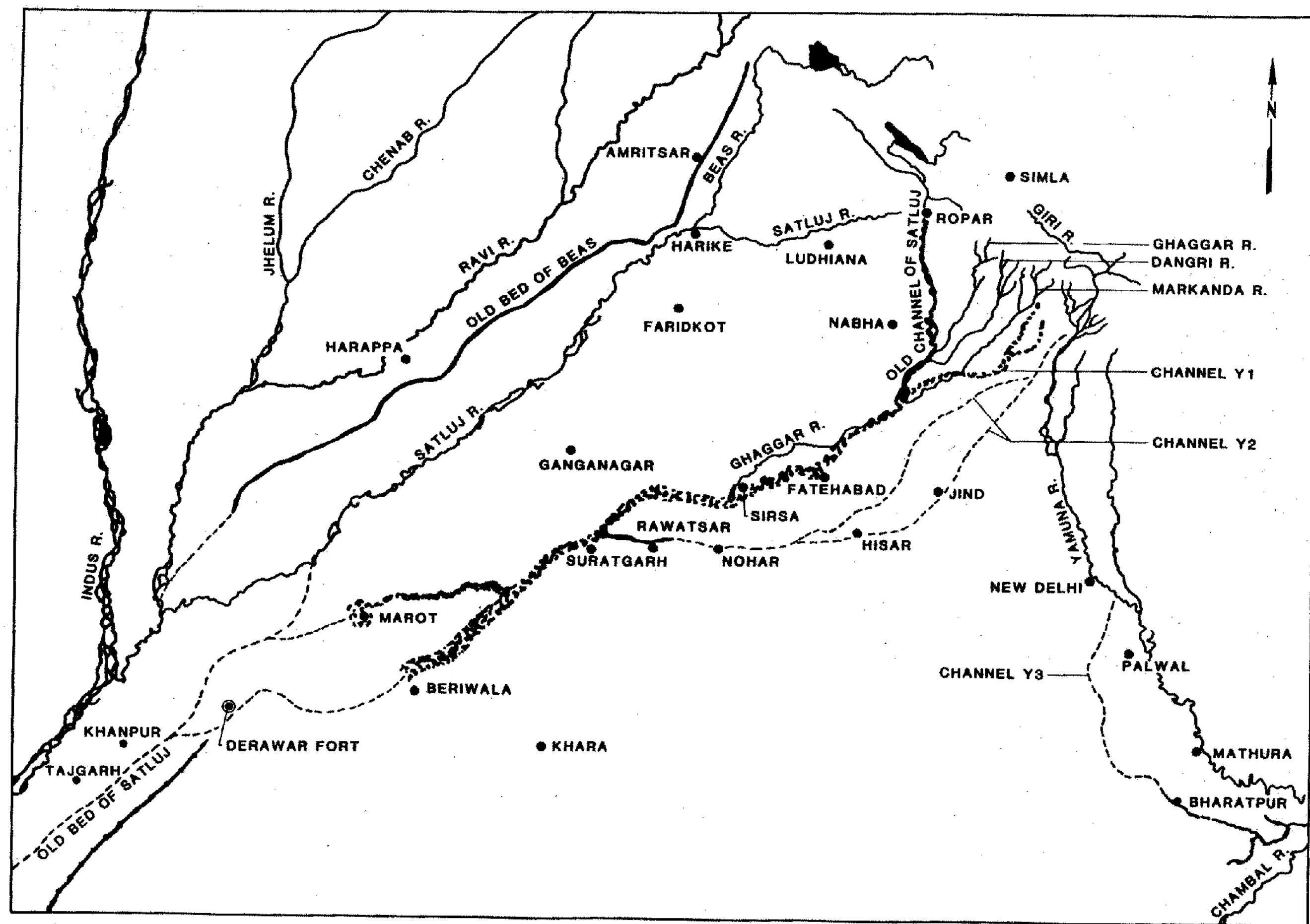
(from Mughal 1980b : 94)

The chronology for Mughal's succession of periods is largely in line with the most recent synthesis of material (Shaffer, in press; Possehl and Rissman, in press).

During all but the period in which the Painted Grey Ware was in use the settlements were located on the desert scarp above the entrenched river. By Painted Grey Ware times the villages are found within the entrenchment, on the bed of the river, certain indication that the system was very dry. Thus, we have important evidence, and a general chronology for the drying-up of this riverine system.

The fluvial sequence apparently has little, if anything to do with broad trends in climatic change, but is rather to be explained by tectonics as outlined in Agrawal and Sood (1982). Over what seems to have been the course of the second millennium B.C. waters which drained out of the Himalayan watershed were gradually captured by streams that flowed to the east, into the Bay of Bengal, at the expense of the greater Indus system. This process apparently led to the creation of the Yamuna River, a very young stream, and the drying-up of the Sarasvati and Drishadvati Rivers (see also Dikshit 1979b; Suraj Bhan 1972 and Pande 1977).

We are not proposing that this stream capture was directly causal to the eclipse of the ancient cities of the Indus. We would seek a sociocultural cause here, just as we would for the Raikes/Dales hypothesis. Over the entire course of the third and second millennia, when the Sarasvati seems to have dried-up, there was plenty of water and arable land within the larger Harappan domain to which these people could have turned. We believe that it should be presumed that the ancient inhabitants of Bahawalpur had options; that they did not have to wither there as their river progressively dried-up. But, if this was the case, if somehow the ancient Harappans of modern Bahawalpur did not have options to move, or if they failed to perceive a series of alternatives to their situation and "went down with the ship," we may be closer to the human context for an explanation than ever before. But we must seek the nature of these sociocultural factors. It should not be assumed that an explanation of the eclipse of the Harappan Civilization is in hand just because there is evidence of the drying-up of the Sarasvati, and that this is largely coincident in time with the emergence of the Post-urban Phase. Genuine, compelling historical explanation is far more difficult to formulate than that. The data on the Sarasvati/Drishadvati river history are important



LEGEND

BED OF SARASVATI

- - - POSSIBLE CONNECTION

0 20 40 60 80 100KM

Fig. 7 Map of the Ancient Sarasvati and Drishadvati

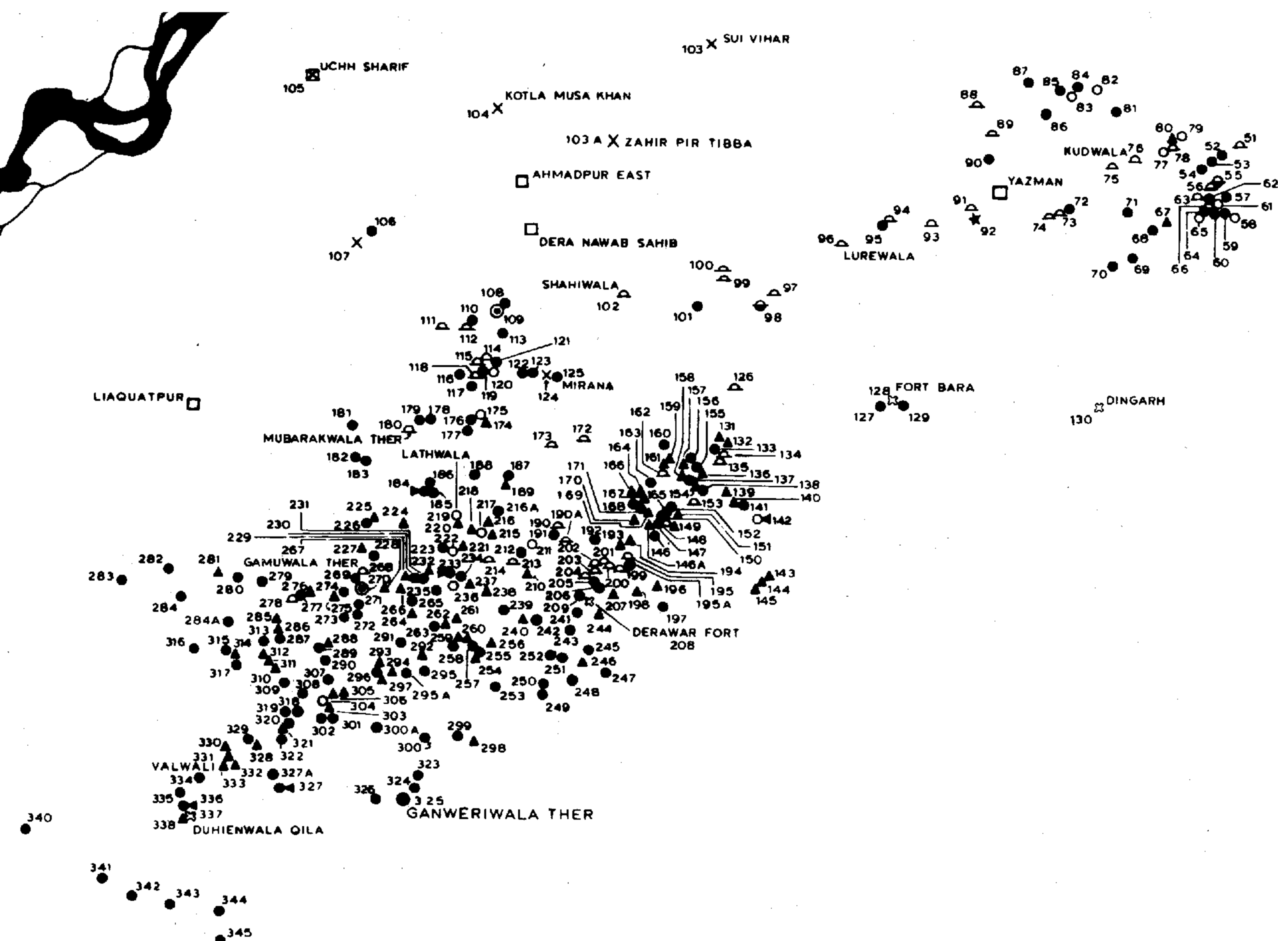


Fig. 8 Archaeological Sites in Bahawalpur

However, it may well be that in some way it bears on the problem at hand, even if it does not explain the events in question.

The Indo-French Archaeological Project has also found many sites along the ancient Sarasvati, but on the Indian side of the border. Their findings are apparently in conformity with Mughal's data, including a significant number of Kushan Period sites with the well known, easily recognized Red Polished Ware (Francfort 1986). They say of the stream capture:

> This shift would have occurred either in the still badly defined Late Harappan period or in the PGW period, or gradually during both since Late Harappan (Cemetery H) and PGW sites in the state of Bahawalpur in Pakistan are found on one of the paleochannels known locally as Hakra. However, the adoption of this 'hypothesis' poses an interesting methodological problem. If we accept this hypothesis, we *must* logically accept as well that another tectonic upheaval would have made the rivers revert to the Kushan (Rang Mahal) period since sites from the latter are again found in the region (Francfort 1986 : 98, original emphasis).

This is an important statement which Francfort intends to use to sharpen the problem formulation of his team and their colleagues in India. They are seeking answers to relevant questions which are stated precisely, and some of this work is already being pursued (Gentelle 1986; Courty 1986). We are not certain however, that we agree with the literal meaning of the point made above. Is it really true that we '*must*' accept the same explanation for both data sets; the protohistoric and the early historic? Wars and migrations come about for many reasons, the same is surely true for the regeneration of a settlement grid. Technologies unavailable, or unused, in prehistoric times may well have been a part of the Kushan agricultural regime. For example, well irrigation and the use of bunds for impounding rain water and soil seem to emerge as important new technological features in western India at about the time of the Kushans (Possehl 1975). This may have allowed renewed settlement in northern Rajasthan, and have been quite independent and unrelated to tectonics.

THE HISTORICAL NATURE OF THE HARAPPAN ECLIPSE

Culture historical information of the kind we have been seeking at Rojdi is important since it places constraints on the kinds of explanations that might apply to an understanding of the emergence of the Post-urban Phase. This presents us with an opportunity to outline what we believe archaeologists are attempting to explain when they seek solutions to this problem. The following are some of these culture historical "facts", as we understand them:

1) *The abandonment of the cities.* The earliest excavators of Mohenjodaro and Harappa noted that these two great metropolitan centers were largely abandoned at the end of the Mature, Urban Phase of the Harappan period. This is true for a number of other sites in the Harappan area (for example, Kot Diji, Balakot, Allahdino, Kalibangan, Ropar, Surkotada, Desalpur). Many other sites have been found that link the Urban Phase of the Harappans to later periods [for example, Chanhudaro, Rangpur, Lothal, Bhagwanpura, Dadheri as well as the host of Post-urban Phase sites in the Eastern and Lothal Domains (Possehl 1982a; Figure 3) of the Harappan area], and there is transitional or Post-urban materials at each of the two cities [for example, Jhukar at Mohenjodaro (see Dales and Kenoyer 1986 : 57-9) and Cemetery H at Harappa (Vats 1940 : 208 ff. and plates XLVII-LXIV)]. This abandonment of the metropolitan centers and reorientation of settlement structure, with signs of continuity within smaller, less diversified settlements, is taken as an index of change at a basic level of the Harappan sociocultural system.

2) *The disruption to the economy.* During the Urban Phase the Harappan economy has abundant evidence of long distance trade and craft production of a wide range of special materials, many of which seem to have been luxury items. Movement of goods and/or craftsmen over long distances can be inferred for the Urban Phase of 500-600 years. Although it is impossible to quantify

such materials from the archaeological record, the impression that comes from our knowledge of Mohenjodaro, Chanhudaro, Kalibangan, Lothal and other places is that the Urban Phase was a time of general economic prosperity for the Harappan peoples. During the Post-urban Phase evidence for economic activity is much changed. Signs of long distance trade are virtually absent, save for possible trade in metals. The range of products, and hence specialized production, is much reduced. The mosaic of stylistic traits which emerges in the Post-urban is indicative of shortened ranges for trade and craftsman intercourse. The impression is not necessarily one of universal economic depression in the Post-urban Phase. This economy is, however, not one which measures-up to the dynamism, scale and prosperity of the Urban Phase phenomenon.

3) *Shifts in the system of settlement and subsistence.* One of the most striking changes associated with the Post-urban Harappan is the reorientation of the Harappan settlement grid. What happened in Gujarat is still not clear, but further archival work, investigating collections on reserve, that is a part of the overall Rojdi project, will change that. The Post-urban Phase may also mark the expansion of Harappan "pioneers" onto the Deccan Plateau at places like Daimabad (Sali 1982; 1986) and into Dhulia District at sites like Kaothe (Dhavalikar, personal communication). Site counts in Sindh, on the other hand, seem to drop remarkably. No fewer than four sites in the vicinity of Karachi are abandoned, for example. The principal Jhukar sites in this region are: Jhukar, Chanhudaro, Amri and the scattered material found at Mohenjodaro itself and referred to already. In Bahawalpur and along the Ghaggar we have already referred to the settlement trends found by Mughal and can add that other explorations on the Indian side of the border support his findings (Frenchman 1972; Dalal 1980). On the other hand, in the Punjab, Haryana and Uttar Pradesh the Post-urban settlement pattern is rich and varied, with a marked increase in the number of settlements, many of which seem to represent year round, agriculturally based communities. An overview of this is available in (Joshi, Madhu Bala and Ram 1984).

Shifts in the subsistence regime also need investigation. For example, the integration of millets into the Gujarat subsistence economy needs to be clarified, since it no longer appears that it was coincident with Rangpur II B-C times (Possehl 1986a). It is also becoming clear that not all of the millets may be significant. *Jowar* and *bajra* are the cultivars of choice today for the summer growing season. Their integration into the subsistence regime of monsoon India may well far outweigh the other millets. It should be recalled that the term 'millet' is a generic one, simply denoting a group of unrelated plants that bear relatively large, round seeds. There is no biological reason for it to be suggested that millets as a class of plants might have the same impact on a human subsistence regime. Not enough has been done with subsistence economics of the Post-urban Phase in other regions for comparable statements to be made about them, and this represents a challenge for scholars working there. But, it would surprise no one to learn of interesting developments in this area of understanding once systematic, problem oriented work has been completed.

4) *The disappearance of Harappan style items of material culture* (see Fairservis 1971 : 299). There is a long list of Harappan style artifacts which do not carry over into a Post-urban cultural context. We mention the distinctive Harappan stamp seals in this regard. There are also a number of ceramic vessel forms and designs which fall into this category. Copper based metal tools and weapons also change (Herman 1984). We will not continue with a list of these items, since our point has been made: the artifactual inventory of the Urban and Post-urban Phases are distinctly different and indicative of significant change in material culture. It is also true that no systematic work has been done on this kind of inventory, region by region. Information of this kind would be useful.

5) *The shift in scale of the stylistic zones of material culture.* The Post-urban Phase witnesses a return to a cultural mosaic not unlike the one found during the Pre-Urban Phase (Possehl 1982a). The very widespread, easily recognized Harappan ceramic corpus, while diverse (Fickle 1973) nonetheless had stylistic coherence. The Harappan black on red ware style is a noteworthy example

of this. The fact that the boundaries of the Post-urban style zones approximate the Pre-urban 'mosaic' with remarkable coherence and may offer an insight into boundaries which were in place during Urban Phase times.

6) *The continuity of human occupation within a cultural framework that is demonstrably Harappan.* This point has already been noted in other contexts and its discussion therefore can be short. In spite of the noted points of change, some of which we feel are of fundamental significance to an understanding of the Harappan Civilization, there is a strong line of continuity throughout the Harappan region. This links the earliest neolithic settlers of the Indus Plains with the beginnings of the Early Historic Period and has been discussed in Possehl (1977). Seen from this perspective the emergence of Post-urban Phase life is but one moment of change in a continuous process which spans millennia. Thus, those who are seeking a full understanding of the "eclipse" of the Indus Civilization must accommodate the continuities in this cultural tradition, as well as the points of change which have been very briefly noted here.

ROJDI EXCAVATIONS

Problems and Areas of Excavations

PROBLEM ORIENTATION

With these points in mind were excavating Rojdi (Figures 4, 5 and 9) in a way which will allow us to isolate points of change and continuity at the site. We are looking for:

1) The chronology and continuity of occupation. This includes an estimate of the date the settlement was founded.

2) The strength of the non-subsistence economy as measured by the presence and quantity of exotic goods, the amount of specialized craft activities, the scale and quality of architecture and other signs of investment and how this changes over time.

3) The Rojdi team is examining the subsistence economy in a number of ways. First, we are attempting to determine the plants and animals that were used by the Harappans at the site. We also want to measure, or at least estimate, the balance between vegetable foods and animal products in the diet. We want to know what the impact of hunting and gathering may have had on the diet. We are also looking for the impact of seasonality on the Rojdi subsistence economy. Each of these questions, and others, are also being examined within a dynamic framework to see if there are changes in subsistence activities over the life of the site. On the regional scale we are looking at Rojdi within the settlement grid that surrounds it. We are seeking to understand this settlement's role in the region and how this may have changed over time. This goal is clearly an integral part of other aspects of our problem orientation. In this effort we are much aided by the presence of Y.M. Chitalwala who is intimately familiar with the region around Rojdi.

4) Our work with the Rojdi material culture is intended to yield both a qualitative and quantitative exhaustive inventory of remains. These data are intended to be used in comparative and stylistic studies that can measure "cultural distance" from the Urban Phase, as well as other materials (see point 5 for distance measurements).

5) The integrated Rojdi inventory of material culture is also going to be used to create "distance" measurements that will allow us to compare our site with other contemporary places in Saurashtra, the other regions of Gujarat, Sindh and surrounding areas. We want to know how our site is similar to and different from other places as a potential way to measure the strength and/or intensity of interaction. Our measures will include various qualitative assessments as well as quantitative measures such as the use of presence/absence matrices, Pearson's 'R', and the Robinson-Brainerd coefficient (Robinson 1951; Brainerd 1951). We will also know by the work of Plog (1980).

To accomplish these ends we have been excavating Rojdi in a very particular way. For example, we have attempted to work in a broad range of excavation "environments." This has meant that we have sampled domestic architecture, buildings we believe to have been public structures, trash deposits in several contexts as well as various forms of occupational and post-occupational fill. We also excavated around the Gateway of the circumvallation on the western side of the site. This broad sampling of the site is clearly revealed in Figures 4 and 9. Our purposeful sampling strategy gives us confidence that we will have an insight into many of the functional and chronological "environments" at Rojdi. We also have invested very heavily in flotation recovery of organics and the recovery of bone and shell. These approaches to data recovery are essential if we are to succeed at accomplishing the goals we have set for ourselves concerning the emergence of the Post-urban Phase, and those related to the Rojdi subsistence economy as well. All of the earth excavated at Rojdi, save for flotation and other soil samples, was screened through one-quarter inch mesh screens. Everything we found was saved and/or recorded, except for unmodified stones and the earth itself.

The hypothesis that we initially took when we began our renewed excavation at Rojdi, and holds true today, was that events far removed from Saurashtra (whether or not they were related to changes in the Sarasvati) might have been central to causing the eclipse of the Harappan cities, towns and villages. The ancient inhabitants of this region were proposed to have suffered a kind of "domino effect." Things going badly, very badly indeed, in an area critical for productivity may well have had significant effects, through the nature of systems, throughout the Harappan domain. We therefore focused our attention on the role that Rojdi played in the regional process which could have been involved with the emergence of the Post-urban Phase.

AREAS OF EXCAVATION AT ROJDI

In the course of seeking information concerning the role that Rojdi played in its region we undertook major excavation in four principal parts of the site: the Gateway, the North Slope, the South Extension and the Main Mound (Figure 9). We will review our principal findings in each of these locations. Before undertaking this, however, we want to make a few brief remarks on the periods during which Rojdi was occupied. Our excavations on the Main Mound have revealed a Medieval deposit there, which is well represented by sherds and scraps of very poor "squatter" architecture. These occupants were spirited pit diggers and such features, with mixed Harappan and Medieval pottery are common in the upper level fill in this area. There is also a smattering of Medieval material on the North Slope. Essentially no Early Historic or Medieval pottery has come to light on the South Extension or at the Gateway. Occasional sherds of the very distinctive Red Polished Ware, associated with the so-called Western Kshatraps at about the time of Christ, have come to light at Rojdi; however, we have no evidence for occupation during this period in the form of stratigraphic documentation.

The Gateway

A surface reconnaissance of Rojdi revealed a line of large basalt boulders running in a more-or-less regular pattern along the western edge of the site (Plates 3–5). It was clear that these formed the foundations for a circumvallation which originally appears to have bordered all but the eastern limit of the site. The circumvallation and its foundations have been removed by erosion along most of the southwestern edge of the site, but an important fragment is preserved which is convincing documentation that it once enclosed the South Extension (Figure 9, Plate 6).

The surface patterning of foundation stones revealed a double bastioned Gateway through this circumvallation along the south-central portion of the western edge of Rojdi (Plates 7, 8 and 9). We undertook excavation at this feature in 1982–83, the first season of renewed work at the site, to

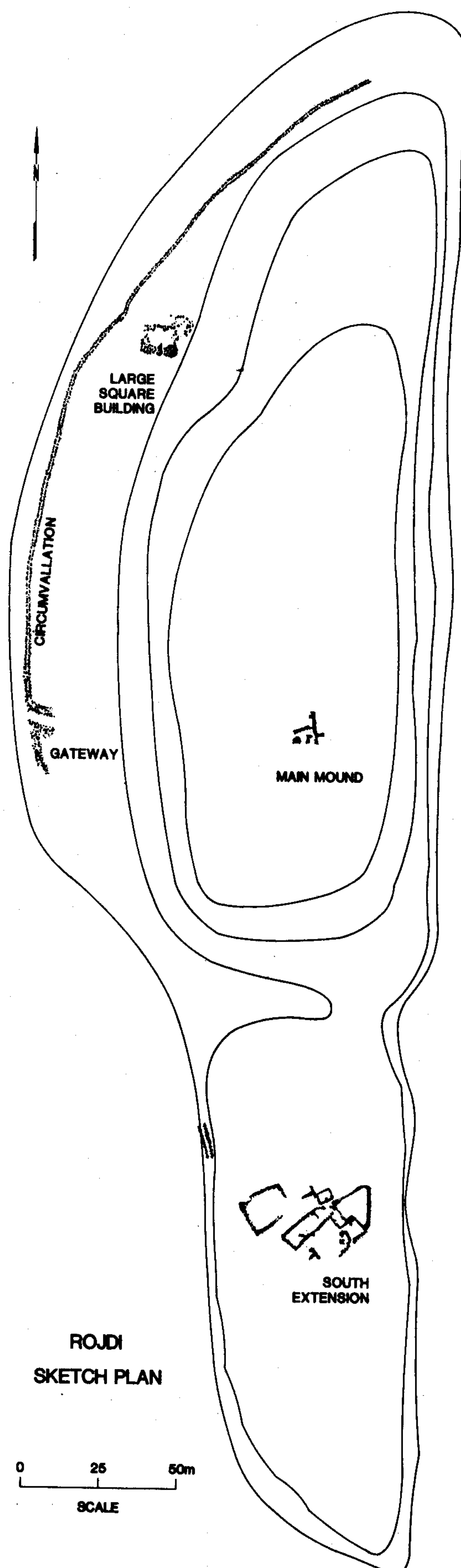


Fig. 9 Rojdi: Plan of Structures in all Areas of Excavation and the Circumvallation

investigate the foundations of the Gateway and the adjacent circumvallation (Figure 10, Plate 10). This sounding and clearing revealed the stratigraphy in this area as well as the engineering that had been used in construction (Figure 11, Plate 11).

The excavation found occasional Harappan red ware sherds in small numbers from the surface to the sandstone bedrock. These were the only ceramics we encountered in this part of the site. An interesting small find was a broken, Harappan type etched carnelian bead, with an ocular motif (Figure 84, Plate 6). Four other beads of this type were found during earlier campaigns at Rojdi (Raval, personal communication).

The Gateway excavations demonstrate that the Circumvallation, and the Gateway itself, post-date the earliest Harappan occupation at Rojdi. Of equal interest, we found that the builders of the Rojdi circumvallation and Gateway had employed a distinctive technique for stabilizing their undertaking. They seem to have dug very shallow foundation trenches into which the large basalt boulders were placed. Between adjacent boulders they placed a smaller stone, or stones, and rammed earth, as shown in Figure 11 and Plate 11. Double lines of basalt boulders, placed 1.5 to 2 meters apart, formed the inside and outside boundaries for the circumvallation/Gateway foundations. Between this double line of foundations they placed more rammed earth and stones, mostly low-grade amygdaloidal basalt. Both forms of basalt are locally available as can be seen from an examination of the stratigraphy along the Bhadar River.

Some of the large basalt boulders weigh more than a metric ton. Teams of workmen must therefore be envisioned as the builders of the Rojdi circumvallation. That they worked on a community level project is demonstrated by the fact that the circumvallation encloses the entire settlement, save for the river side. Thus, the circumvallation and Gateway at Rojdi represent a form of monumental architecture, conceived and executed by a community for its own purposes.

On the North Slope of Rojdi are the remains of another structure built of large basalt boulders. Our original surface reconnaissance led us to believe that this was a circular building, something like an intramural tower, but careful clearing and plotting of these remains revealed the collapsed debris of a rectilinear building, approximately square (Figure 12 and Plate 12).

The Large Square Building

There were three separate, but interlocking, excavation strategies applied to our investigation of this building. The first of these was designed to investigate the foundations of the outside northern wall of the building with a trench that would connect it to the circumvallation. The second operation investigated the interior of the building. Finally, a trench connecting the southern wall of the Large Square Building to the North Slope of the Main Mound was undertaken to see what we could learn of the stratigraphic history of this part of Rojdi.

The trench connecting the Large Square Building to the main wall was excavated in 1982-83. It was undertaken in trenches 20U, V, W and X and was approximately 20 meters long (Plate 13). We found that the foundations of the building and the foundations of the circumvallation were both built on a very hard layer of black cotton soil which could easily be traced the entire length of the trench, just a few centimeters below the surface. Moreover, exposures of the building foundations and those of the main circumvallation as well, revealed that they had been engineered in the same fashion as the main circumvallation in the area of the Gateway (see Plates 14 and 15). This is all convincing evidence that the Large Square Building and the Circumvallation were built during the same architectural period at Rojdi.

Our colleague Paul Rissman undertook all of the excavations at the Large Square Building. His investigation of approximately 15 square meters for this structure's interior revealed a mass of Harappan pottery, principally Fine Ware storage pots, often painted, associated with two distinctive phases of building collapse; stones and lumps of burnt clay.

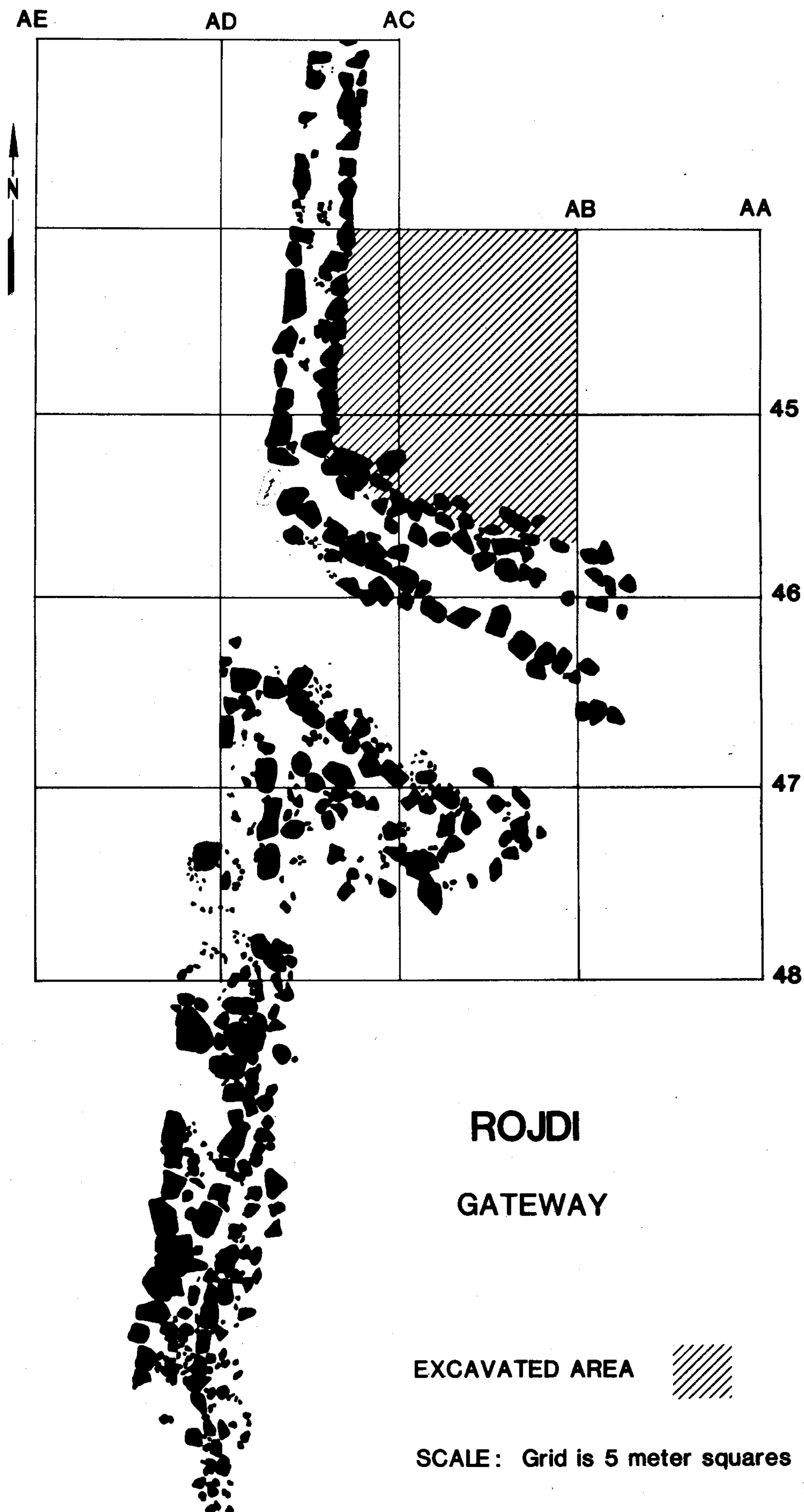
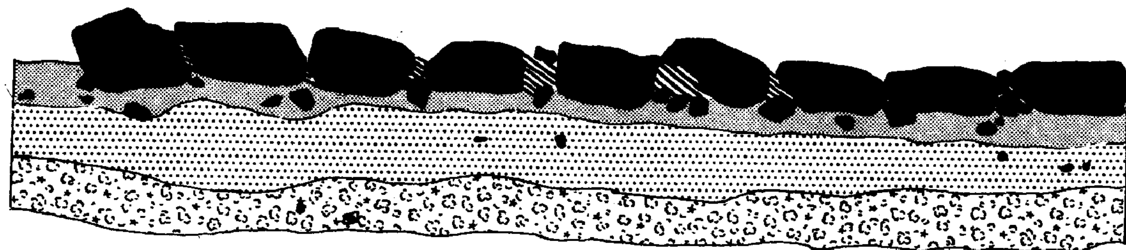


Fig. 10 Gateway Excavation



ROJDI 1982/83

SECTION DRAWING OF THE WEST WALL OF TRENCH 44AD


EARTH PACKED BETWEEN STONES


BLACK COTTON SOIL


BLACK SOIL WITH HARAPPAN SHERDS

SCALE 1 m

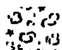

BLACK SOIL WITH CARBONATE

Fig. 11 Stratigraphy at the Gateway

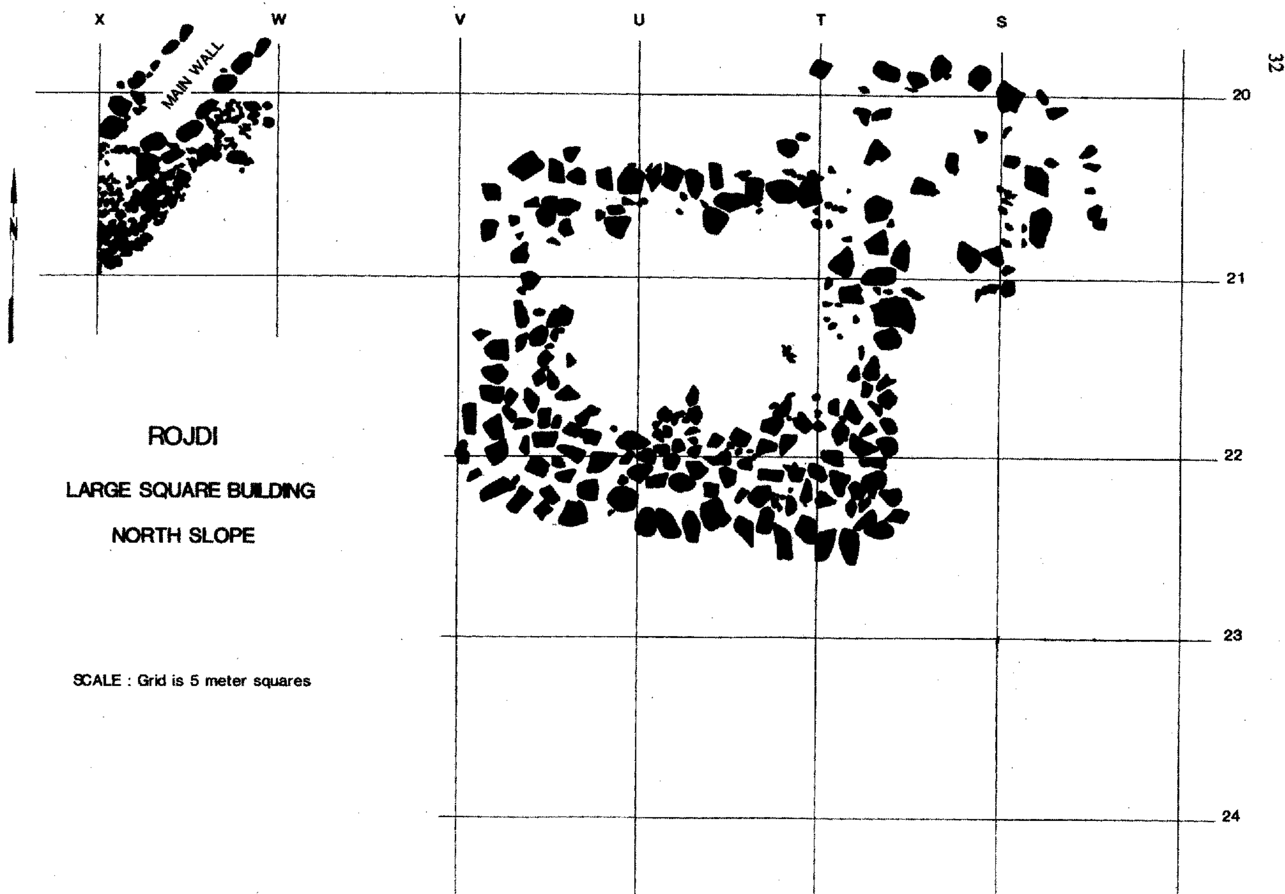


Fig. 12 The Large Square Building

The first phase of deterioration is documented by debris lying directly on the hard layer on which the building's foundations sit. Above this we found the ceramics just noted. These were covered by, and interdigitated with, other collapse debris. These findings lead us to believe that the building may have been in a state of disrepair when the pottery was deposited. It then further collapsed, apparently bringing its use as a dump to an end.

When this material was being excavated we noted the high concentration of thick storage jar sherds; a selection of which is shown in Figures 66 through 68. The excavator, Dr. Rissman, therefore took great care in documenting the pottery before it was removed from the building, hoping that sherds could be conjoined into reconstructed vessels in our ceramic laboratory. This considerable effort seems to have led to limited results, with at least some joins being made for these large jars. Our hopes that the Large Square Building could be documented as a storage facility have not quite been fulfilled and the original function of the Large Square Building remains something of a mystery.

A final point concerning the Large Square Building was included in our preliminary report on the 1983–84 excavations and can be quoted from this paper.

> An interesting aside concerns the composition of the pottery dump deposited in this structure between the first and second events of collapse. High percentages of buff storage jars are not encountered in trash contexts in other areas of the site. In addition, animal bones which make up a high proportion of the domestic refuse at Rojdi are lacking in this deposit. This dump may then represent the remains of a specialized, non-domestic series of activities carried out in the vicinity of the Large Square Building. Only further excavation will throw light on this proposition (Possehl, et al. 1985 : 89).

The final excavation strategy we undertook at the Large Square Building involved digging a trench connecting the southern wall of this building to what seems to have been a large retaining wall in the northwest corner of the Main Mound, about 15 meters away (Plate 16). This is outlined in some detail in the preliminary report just noted (Possehl, et al. 1985 : 89–90.) so it can be summarized here.

We discovered that a sequence of events can be reasoned from the stratigraphy we found. The earliest documented use of the area involves the filling of a cut or hollow with trash: pottery, animal bones and the like. These deposits underlie the southern foundations of the Large Square Building. We can then document the construction of this building. The surface associated with this construction could be traced to the Main Mound retaining wall, already noted, where it passed 50 centimeters under these foundations. The construction of the retaining wall, seemingly marking the maximum expansion of settlement in this part of the site, is the final major event we documented in this area. "This sequence of settlement expansion and intensification of land use parallels results from the South Extension and yields a picture of a . . . site experiencing constant growth over its duration of settlement" (Possehl, et al. 1985 : 90).

The South Extension

Our renewed investigation of Rojdi has concentrated to some extent on the horizontal exposure of a significant section of what we have come to call the South Extension of the site (Figure 13; Plate 17). Two seasons of work in this area exposed in excess of 1000 square meters of the site. While we concentrated on exposing the final subphase of architecture on the South Extension, deep trenches to virgin soil were excavated in squares 76H, 76L and 76N. These have allowed us to reconstruct the stratigraphic history of this sector of the site, which will be reviewed below.

South Extension Trash Pits

The initial activity on the South Extensions seems to have been confined to the use of the area as a

trash dump. Our deep probings in three of trenches in the 76 line all uncovered a series of complex, interdigitated pits, rich in animal bones and pottery. The bottoms of the pits were found on virgin soil, just short of 2 meters below the surface. Pit lines could be traced in section (Plate 18) with considerable ease; although they were extremely difficult to dig.

The pits were all rich in the Saurashtran variety of Harappan ceramics. Pottery from other time periods is distinguished by its total absence in the pit fill from the South Extension. Fine red wares, often with a red slip, predominate. These are complemented by a fine buff ware, a coarse black and red ware and other coarse wares. The pottery is presently undergoing analysis. A sample from various strata in 76N is presented as Figures 67 through 69 in the pottery analysis section of this report. It appears to be remarkable for its homogeneity; possible testimony to the short duration of pit deposition on the South Extension. The pits were also rich in animal bones, which are undergoing analysis. More will be said of our preliminary findings when we review our attempts at reconstructing the Rojdi subsistence system, later in this report.

We also invested a great deal of time and effort in taking flotation samples from these pits, and other features as well. This technique allowed us to recover a range of very small and delicate objects. The principal aim was to recover botanical specimens, a task at which we seem to have succeeded. Once again, this is material under study, which will be reviewed as a part of our report on subsistence activities.

South Extension Architecture: An Overview

Overlying these trash pits is an architectural complex of some magnitude and interest. Two principal building levels were in evidence. The lowest of these, Phase 1, is well represented in trenches 78L and 79L and may be the explanation for a line of stones in 76L (Plate 19). The uppermost Phase 2 has at least two subphases. The first of these is designated 2a. The remodeling is then 2b, the final building activity on the South Extension. These will be briefly reviewed in turn.

Phase 1 structures appear most robustly in trenches 78L and 79L (Figures 14 and 18, Plate 20). The most distinctive feature is a section of a curved wall foundation on an arc of approximately 20 meters in diameter. This is the only curvilinear building that has been discovered at Rojdi so far. This is associated with paving to the west and what appears to be the continuation of the wall to the south, in 79L. The wall and paving disappear into the northern section of 78L, below the bottom of the Phase 2 architecture in 77L (Figure 18). A similar observation was made along the east baulk of 78L, where the curved wall was observed below the foundations of the Phase 2 wall in 78H. There is no doubt about the stratigraphic associations in this case.

Phase 1 architecture on the South Extension does not seem to represent a widespread building period; at least not on the scale of the Phase 2 endeavor. Subphase 2a is seen in Figure 13. There are a number of observations that we want to make about this plan, but first, an aside on relative chronology.

There are a number of complete Harappan pots which were found *in situ* on what seem to have been habitation surfaces associated with Phase 2 architecture. One of these was found in the "corridor" of 78J. The other was found in 76K. In addition, an Harappan Coarse Black and Red Ware pot was recovered from a niche in the southwestern wall of Structure I. These locations are all marked by an 'X' on Figure 18. These *in situ* Sorath Harappan pots, plus the abundance of Sorath Harappan pottery generally, to the exclusion of wares of other periods, demonstrate rather conclusively the date of this building activity on the South Extension.

First, there is a regular orientation to the buildings we have uncovered. The eastern most wall of Structure I (Figures 13 and 14), that is the wall approximately aligned with our grid system, is approximately 15 degrees off of magnetic north. The meaning of this orientation is not understood at the moment; however the regularity of the grid is striking and indicative of a high degree of community organization and ability to plan.

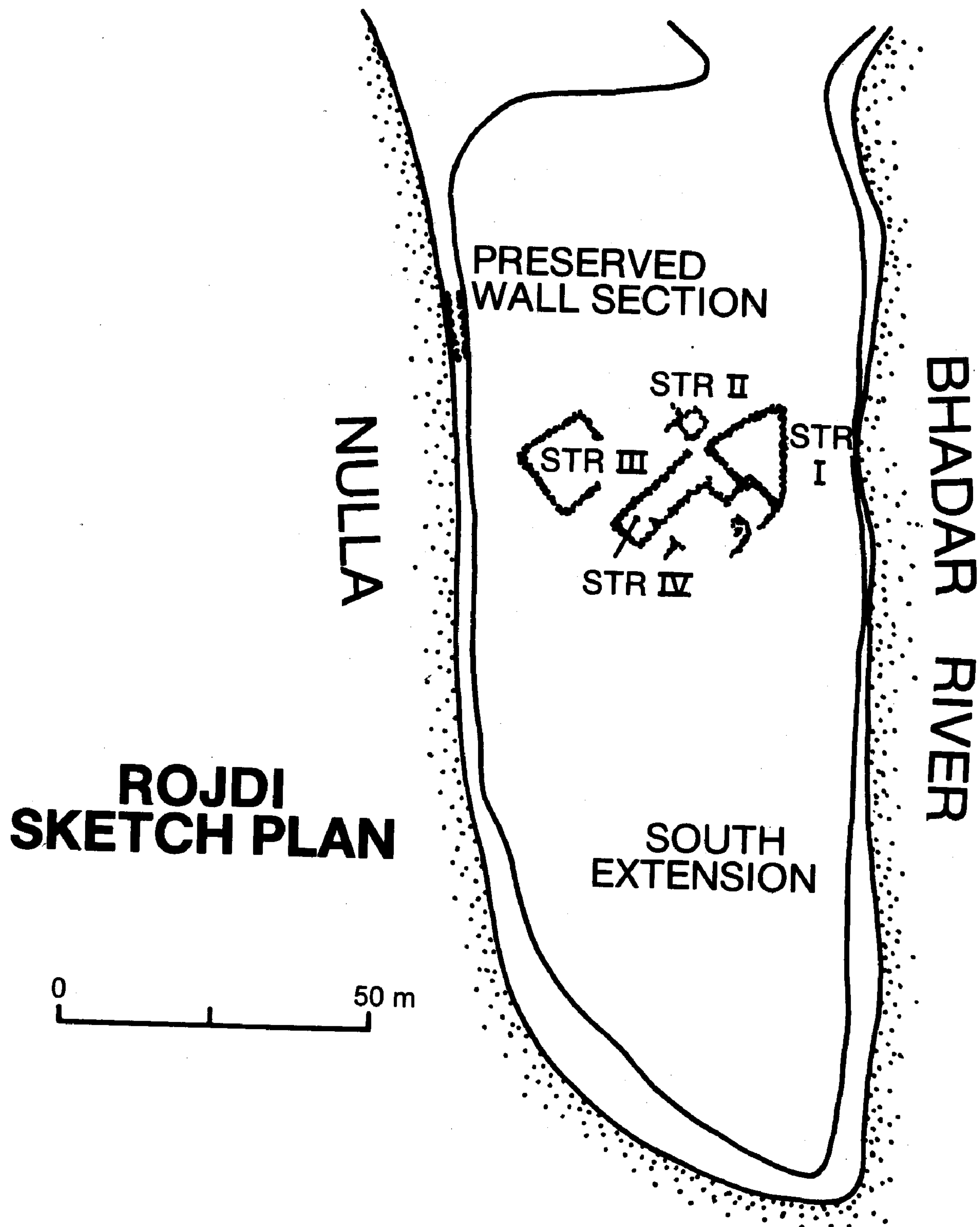
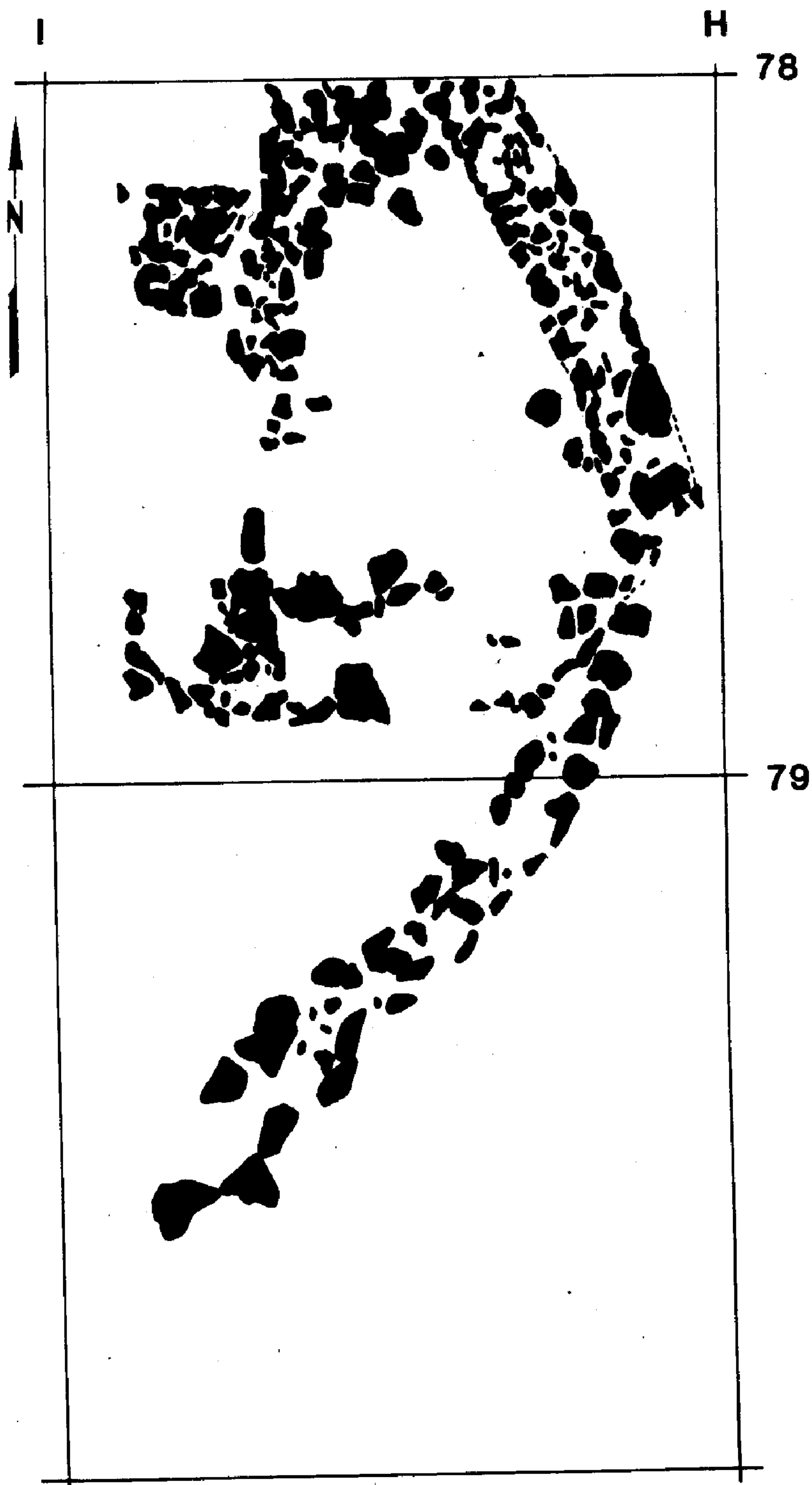


Fig. 13 Plan of the South Extension



ROJDI

SOUTH EXTENSION

PLAN OF PHASE I STRUCTURES

Fig. 14 South Extension Building of Architectural Phase 1

We have come to believe that the architecture we are discussing was conceived and constructed as a single building phase, with a common orientation to the structures. The eastern edge of the Rojdi mound is approximately 1.5 meters to the east of the eastern wall of Structure I. This is the wall which is in virtually perfect alignment with grid line G. It seems that the ancient plant began on the opposite side of the South Extension, in the vicinity of Structure III. Complete rectilinear buildings were planned and built moving from west to east. When time came to build Structure I it seems that it was not possible to complete a rectilinear building on the scale that was envisioned because the edge of the settlement had been reached. This resulted in the "odd" orientation to the eastern wall of this building, the wall along grid line G. This level of community organization is something that would be associated with the Mature, Urban Harappan. That it has appeared in regional contexts in the center of Saurashtra is something of a surprise. It will be observed later, that the same kind of architectural planning seems to be evidenced in the final subphase of Harappan building activity on the Main Mound.

South Extension Architecture: Structure I

By far the most interesting of the buildings on the South Extension is the triangular building we have designated Structure I. This is also the only building that has undergone modification, and gives us reason for Subphases 'a' and 'b'. The original building is shown in Figure 15. Although there is no absolutely clear entrance associated with this subphase, it would seem reasonable to place it in the western-most gap shown in the plan. The presence of the soak pit is also not demonstrably a part of this building subphase. The modified building is shown in Figure 16. This involved removing the southwestern wall, converting a room into a "corridor". The building was made smaller by adding a wall with a northwest/southeast orientation. The weakened wall, which we have already noted as having been removed in part, was strengthened by adding a butress (Plates 21, 22 and 23). An entrance, with exterior flag stones and an interior entrance platform completed the remodeling of the Structure I (Plates 24 and 25).

There were no features such as post holes, column bases, storage pits or hearths in Structure I. The exact function of this building cannot be ascertained from finds. We have no reason to doubt, however, that it was a house of some kind. A hypothetical reconstruction of the building is shown in Figure 17. This illustration results from a process of reasonable speculation that will not be critiqued here. The South Extension in architectural Subphase 2b, apparently not long before its abandonment, is shown in Figure 18.

South Extension Architecture: Structure II

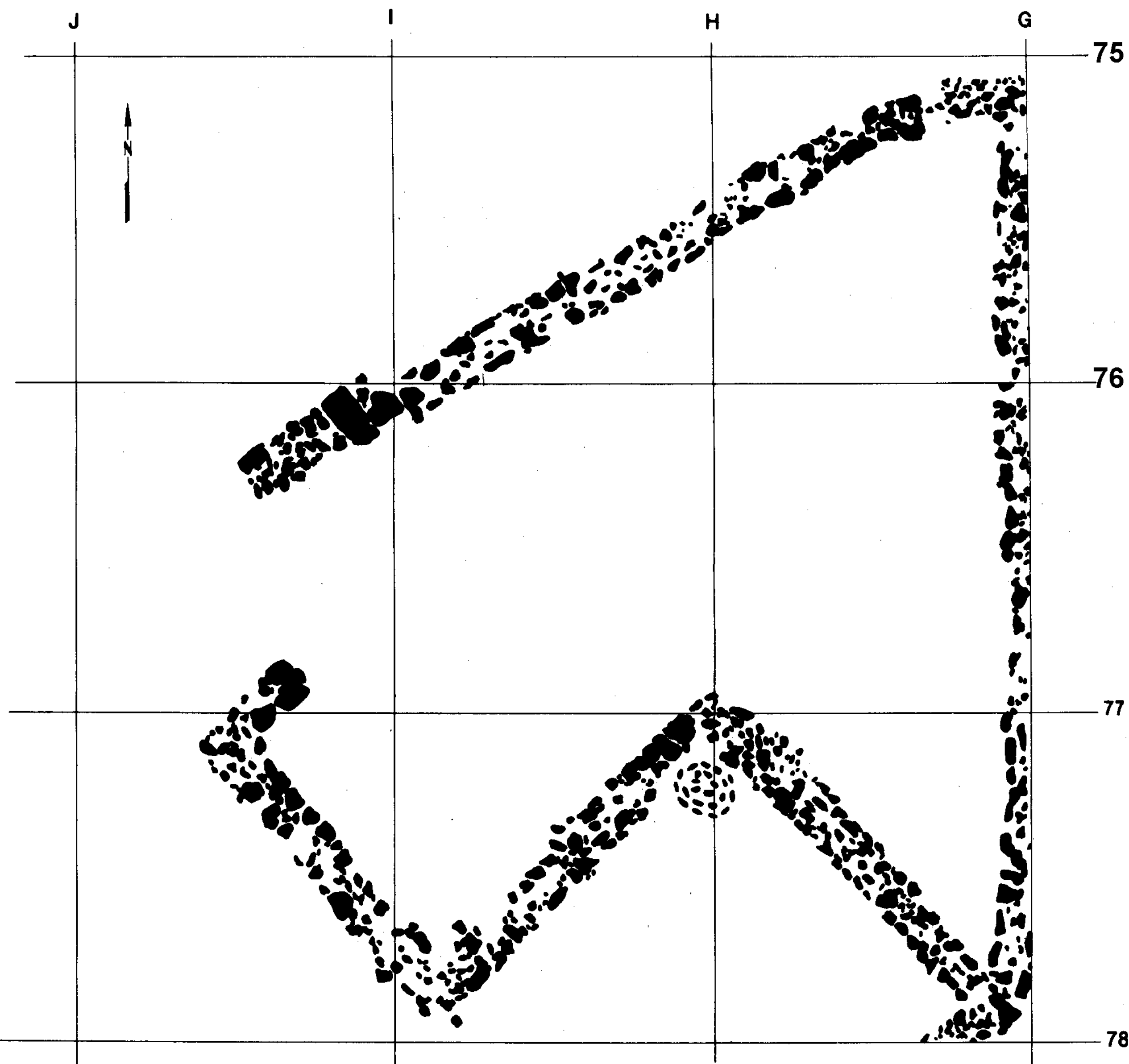
Structure II (Figure 19, Plates 26 and 27) was a small building. No finds associated with it could be used to determine the function of this structure; but it was probably too small for habitation. It might have been an animal pen, or more likely, a storage room of some kind.

South Extension Architecture: Structure III

Figure 20 gives a ground plan for Structure III. This was a very large building with external dimensions of approximately 12 by 14 meters, covering an area of approximately 168 square meters. The eastern corner of the building had been disturbed and no foundation stones were observed in place. The function of the building could not be determined from associated finds. Nor are there interior features (post holes, hearths, storage features, etc.) which assist in this task. Our assumption in that this building served habitational needs when Rojdi was an active community.

The South Extension: Concluding Remarks

One of the observations that brought us to investigate the South Extension was the presence of clear

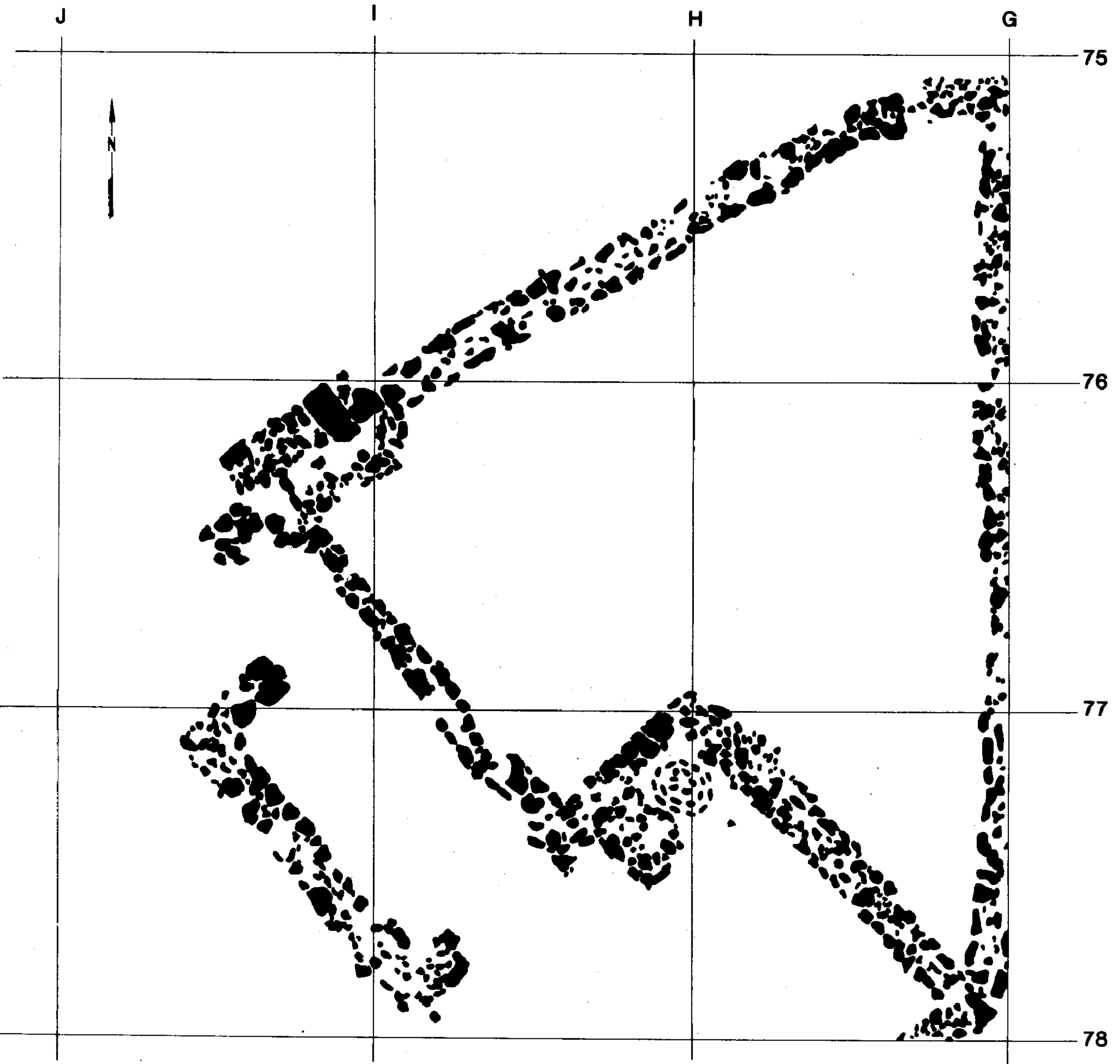


ROJDI

SOUTH EXTENSION
PLAN OF STRUCTURE I
ARCHITECTURAL PHASE 2a

SCALE: Grid is 5 meter squares

Fig. 15 South Extension, Structure I of Architectural Subphase 2a



ROJDI

SOUTH EXTENSION
PLAN OF STRUCTURE I
ARCHITECTURAL PHASE 2b

Fig. 16 South Extension, Structure I of Architectural Subphase 2b

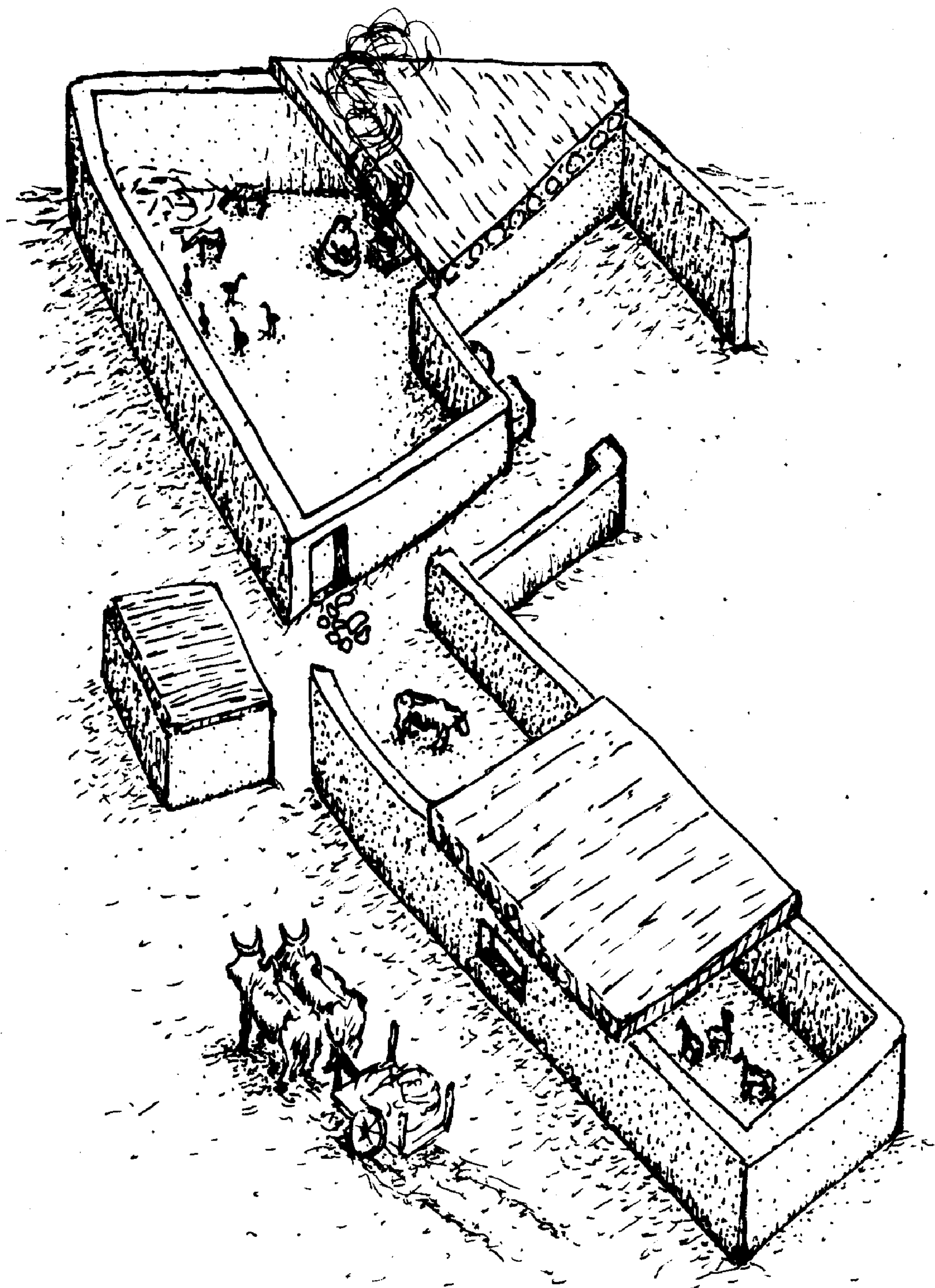


Fig. 17 Reconstruction of Structure I/IV

O N M L K J I H G

75 76 77 78 79

ROJDI 1983-85

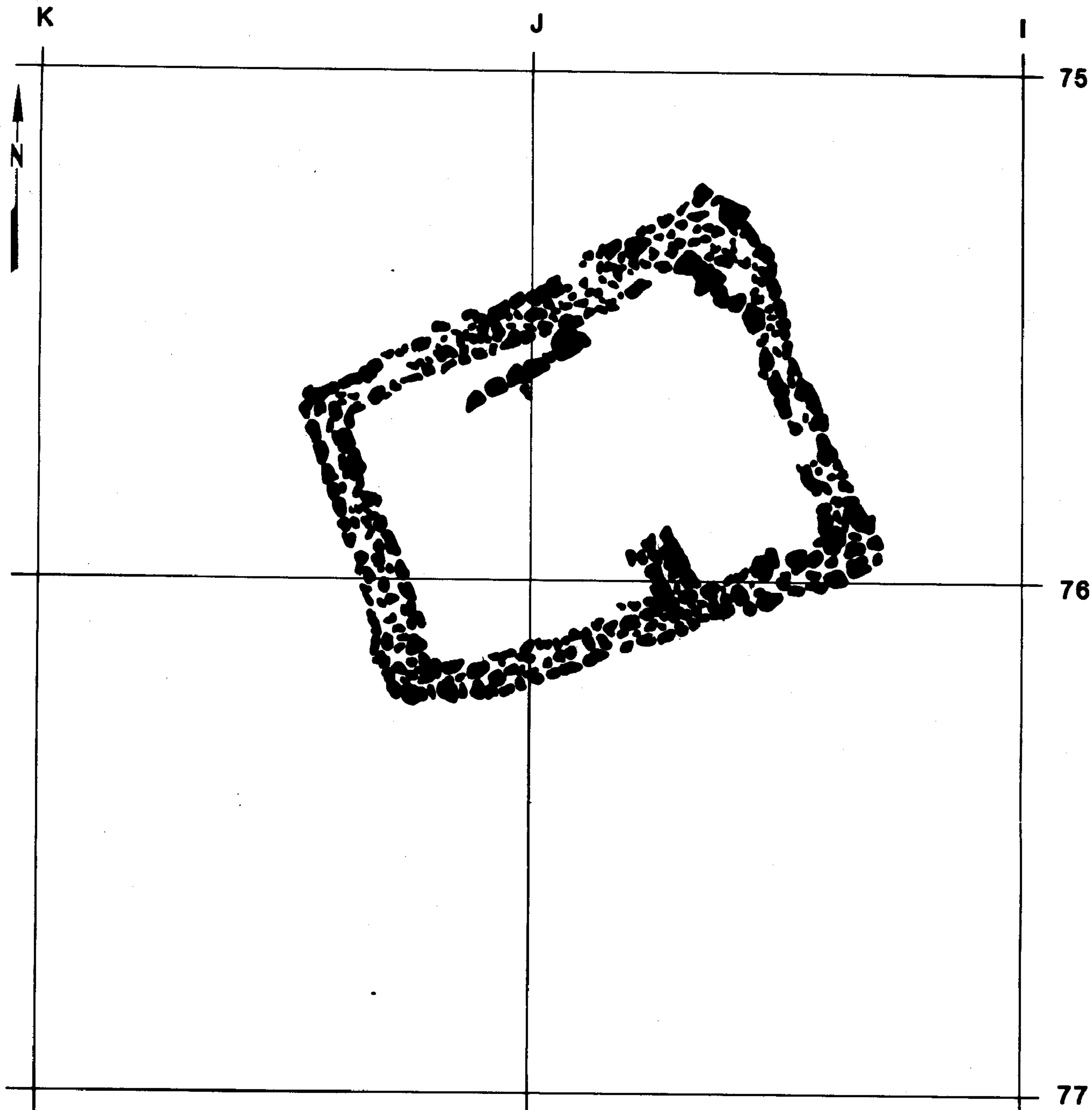
PLAN OF STRUCTURES ON THE SOUTH EXTENSION

SCALE: Grid is 5 meter squares

LEGEND


ARCHITECTURAL PHASE 2b

Fig. 18 South Extension, Architectural Subphase 2b

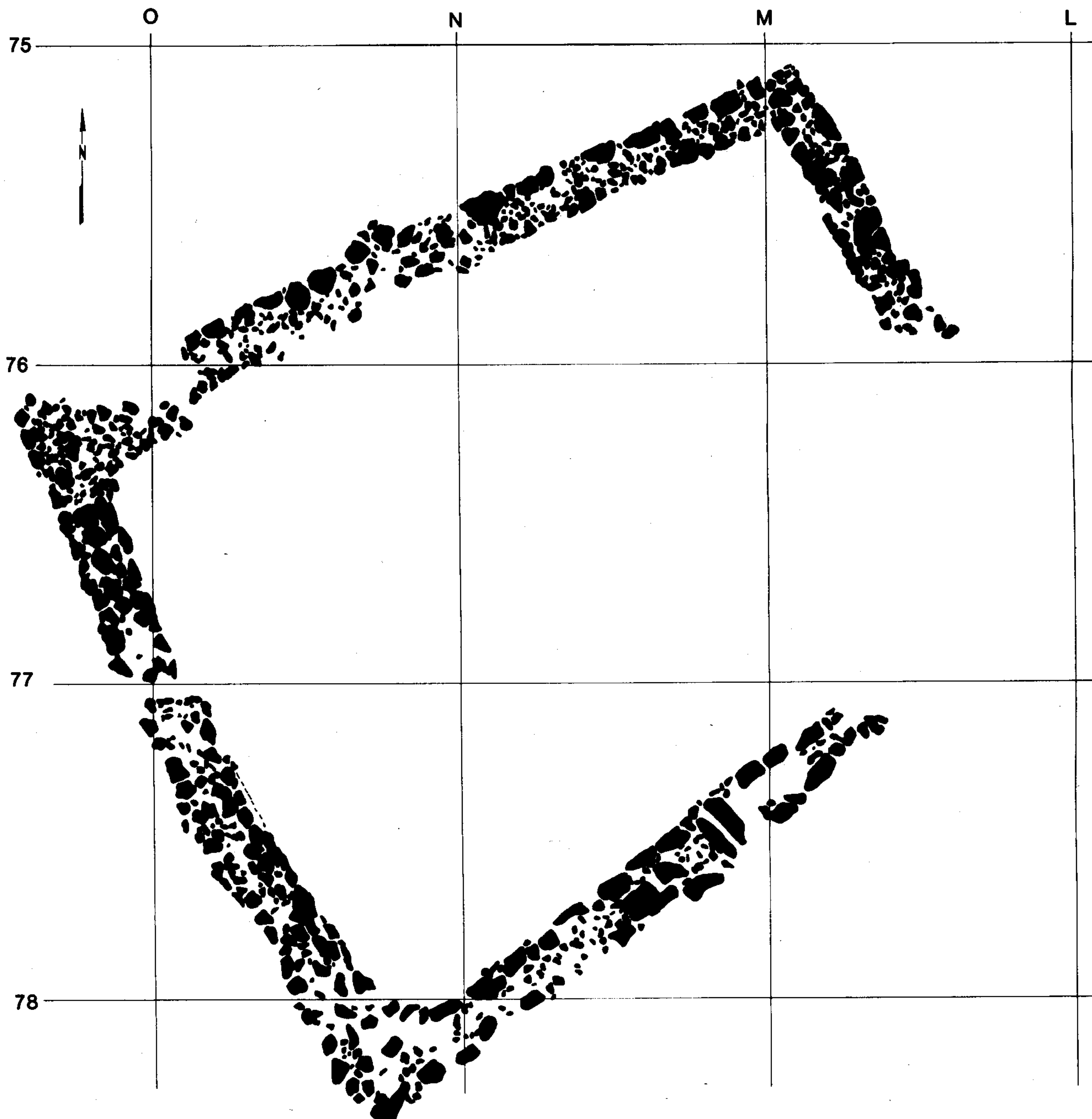


ROJDI

SOUTH EXTENSION

PLAN OF STRUCTURE I I

Fig. 19 Structure II, Architectural Phase 2



ROJDI

SOUTH EXTENSION
PLAN OF STRUCTURE III

Fig. 20 Structure III, Architectural Phase 2

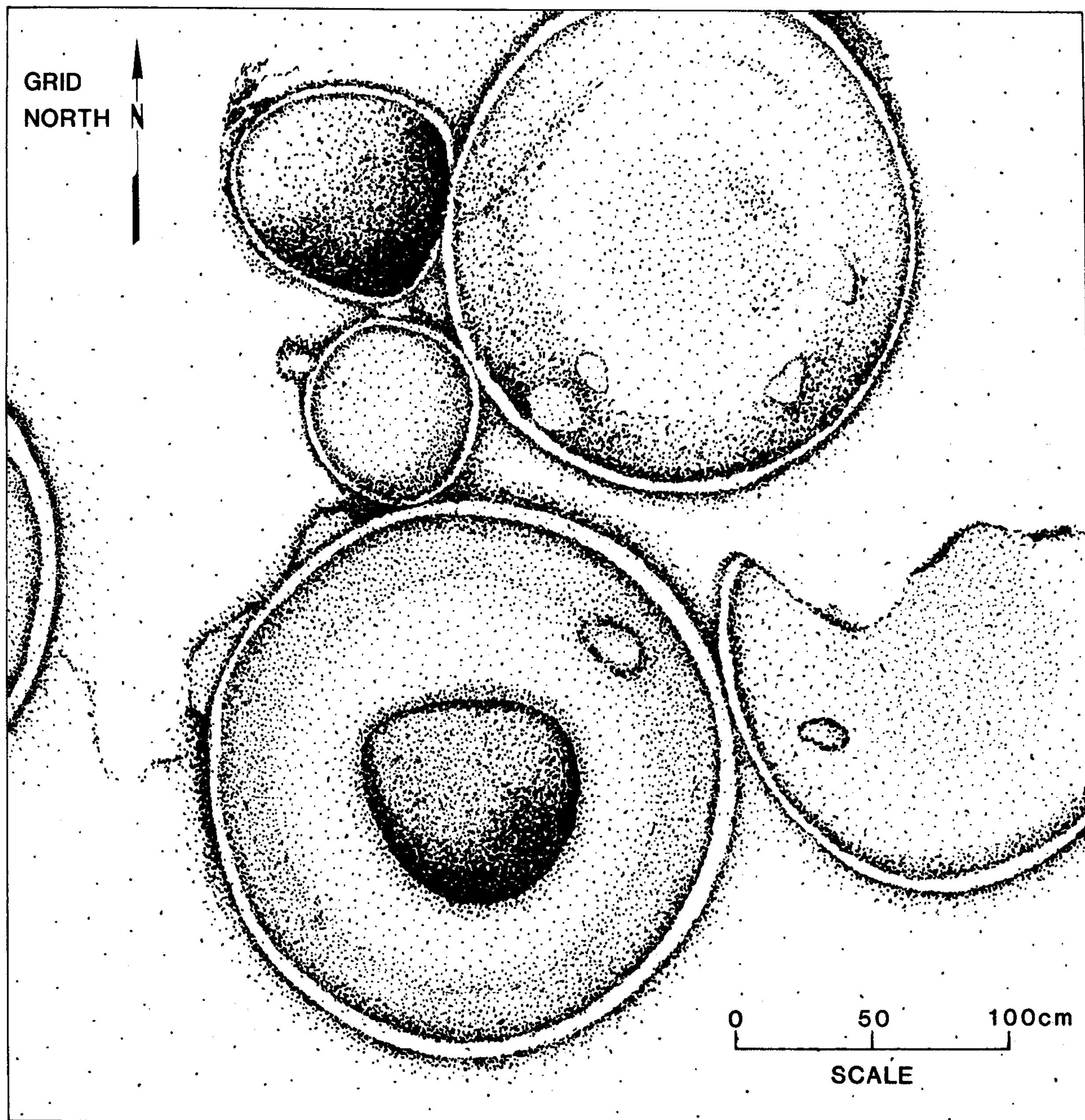


Fig. 21 Storage Bin Foundations in Trench 45K

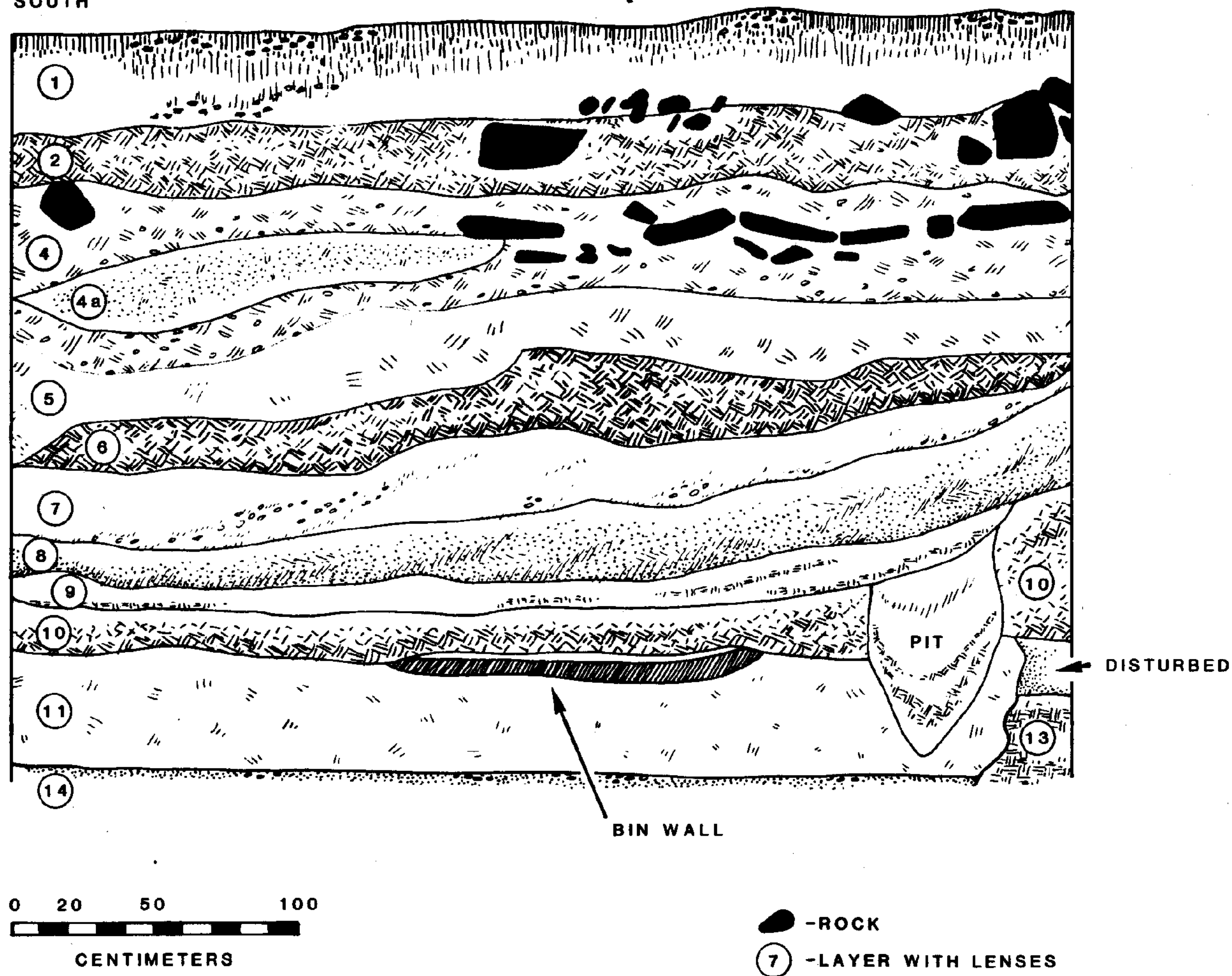


Fig. 22 Section Drawing of Trench 45K, Main Mound

◆ 45K

ROJDI
MAIN MOUND
ARCHITECTURE

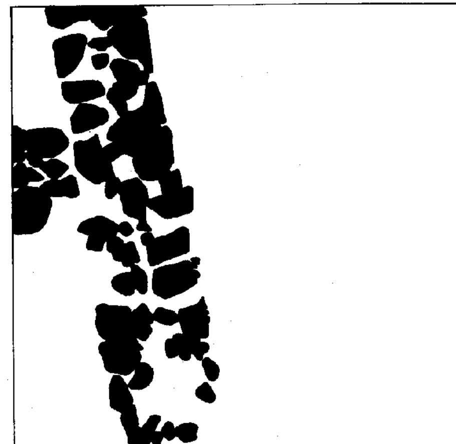


 FINAL PHASE B

 FINAL PHASE B PAVING

 FINAL PHASE A

0 1 m
SCALE



◆ 46L

◆ 46K

Fig. 23 Plan of Structure on the Main Mound from Architectural Subphase 2b

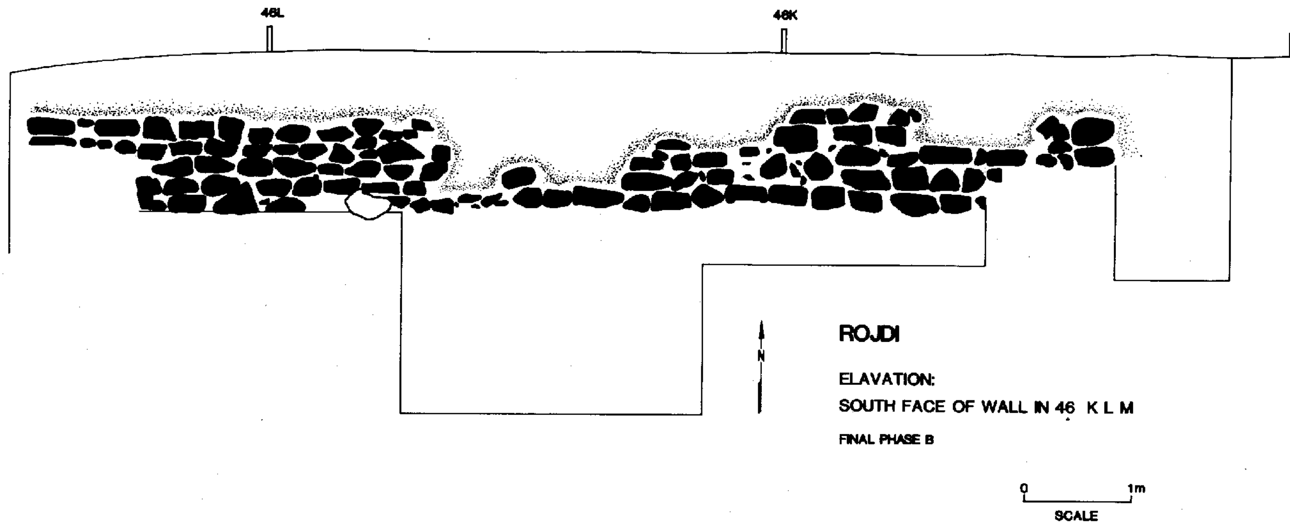


Fig. 24 Section Drawing of North Wall of the Building in Figure 23

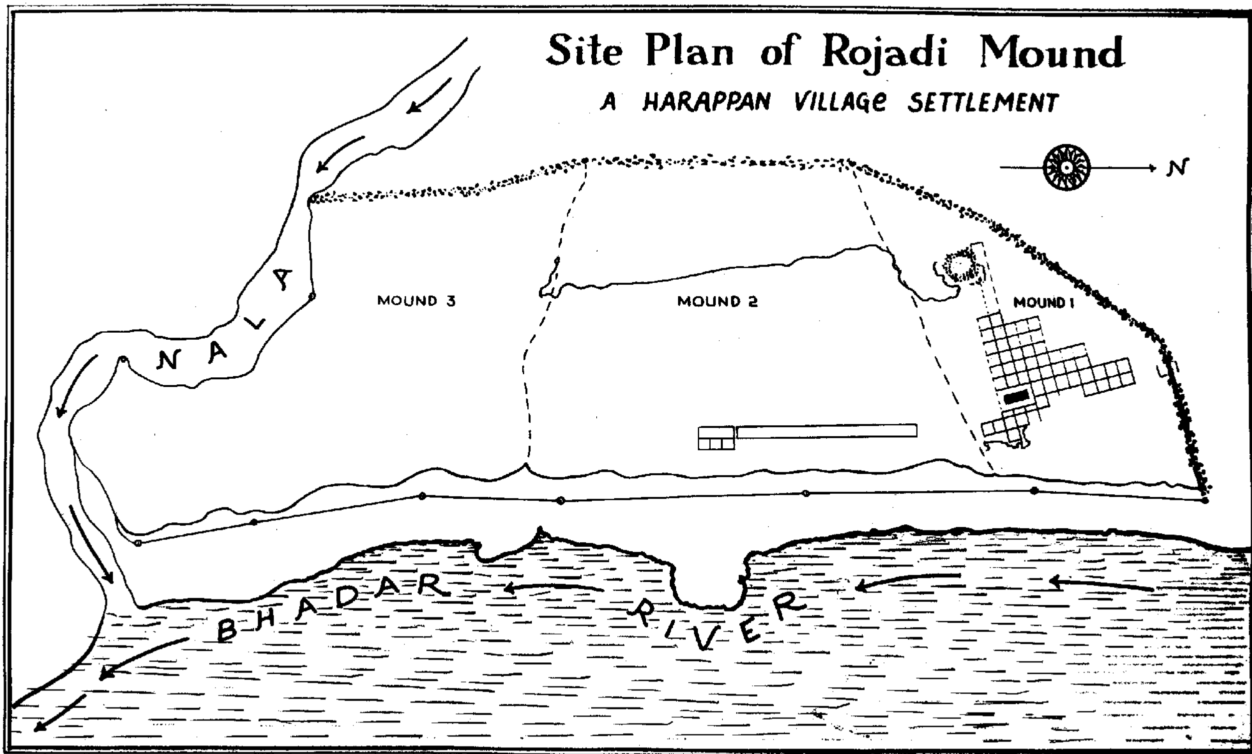


Fig. 25 Plan of Gujarat State Department of Archaeology Trenches on the Main Mound

wall lines showing on the surface. Some of these could be traced for many meters. To the south of our horizontal exposure these wall lines are also in evidence. They are in alignment with those of the excavated structures and give testimony to the fact that the Phase 2 building activity here was on a scale somewhat larger than the excavated remains document. The area deserves further investigation to determine the full extent of this activity.

A number of copper/bronze artifacts came to light as a part of our excavations on the South Extension. These included bangles, a *parsu* with an "endless knot" motif and a ribbed 'ornament' on a sheet of metal. These will be discussed fully later in the report.

Limited but important excavation on the Main Mound at Rojdi produced evidence that the final Harappan occupation there also had a large-scale building level. We believe that this is approximately coeval with architectural Phase 2 on the South Extension, but a final determination in this regard will have to wait for the full processing of our radiocarbon samples.

The Main Mound

The longest sequence of occupation at Rojdi is available on what we have come to call the Main Mound. A deep sounding in trench 45K produced a sequence which we can describe now. We found that the initial settlers in this sector of Rojdi built a very hard, flat floor on earth that was sterile, save for an occasional Harappan red ware sherd. This floor had a foundation of dark brown earth which was capped with a material lighter in color and very well constructed. The top of the floor was approximately 280 centimeters below our datum post. Curiously, there was a poorly preserved skeleton of an infant human lying on this floor. The child was very young when it expired, probably less than one year of age. There was no sign of an interment or funerary offering. This floor disappeared into all four baulks of the trench and, save for the infant, was completely devoid of features (Plate 28).

Above this floor was a thin stratum of fill into which had been built what appear to be the bases or foundations of storage bins (Plate 29 and Figures 21 and 22). The floor that was just described can be seen in the center of the complete bin in the upper right quarter of Plate 29, where the bottom has been broken away. As can be seen, the bottom of this bin is separated from the floor by less than 10 centimeters. The bins are made of earth, with little or no temper. No convincing sign of a superstructure to these bins was found in the course of excavation. Another infant skeleton, this time interred, was found at the bottom of the small bin in the lower right hand side of Plate 29, near the bottom end of the photographic scale lying on the bottom of the trench. This culster of architectural features is larger than the exposed 16 square meters as domonstrated by the fact that they disappear into baulks.

The bins are separated by approximately 110 centimeters of secondary fill and trash from the upper-most Harappan building level, which also has two subphases, as documented in trench 46K (Plate 30). The plan and section of a large structure in this area is shown in Figures 23 and 24 (see Plate 31). This structure is associated with the base of one Harappan red ware pot set in a "floor," as well as two Harappan copper/bronze tools (an axe and a bar celt, Figures 75 and 76) found in pits within it.

The Gujarat State Department of Archaeology excavated in this area of Rojdi in the 1960s. Their trench is noted on Figure 25. Drawings made at the time of excavation indicate that buildings of similar size and orientation to the one just noted were found along this exposure as well. Thus, there is reason to believe that horizontal excavation in this part of the site would yield a plan of a substantial building phase at the site.

Above the final Subphase of Sorath Harappan occupation on the Main Mound there is a poorly preserved Medieval level. This is best documented by trash pits rich in Medieval pottery, but there are also occasional scatters of stones and rough wall alignments.

THE ARCHITECTURAL CHRONOLOGY AT ROJDI

The stratigraphy of the Main Mound in the limited area we excavated can be summarized as being composed of two episodes of Sorath Harappan building, each with two Subphases, which are separated by fill and capped by a sparsely documented Medieval deposit. This is shown in Table 6 (Figures 26 and 27).

TABLE 6
Architectural Stratigraphy on the South Extension and Main Mound at Rojdi

South Extension	Main Mound
Subphase 2b: Remodeling of Structure I	
Subphase 2a: Major Building Activity in This Area	
Phase 1: Curved Building	Subphase 2b: The Large Building
	Subphase 2a: Structure in 46K
TRASH PITS	
	FILL
	Subphase 1b: Bins in 45K
	Subphase 1a: Floor in 45K and Hearth in 46L
VIRGIN SOIL	

Our very preliminary analysis of the pottery suggests that all of the architecture seen on the South Extension in Figure 13 immediately follows the construction of the final Subphase 2b structures on the Main Mound.

Taking the intramural relative chronology of Rojdi this far yields another potentially interesting insight into the architectural history of the site. We have already presented evidence that the Large Square Building and the Circumvallation can be assigned to the same period. The preservation of a small section of the Circumvallation on the South Extension demonstrates with reasonable certainty that this wall once enclosed all of the site, except for the river side. Assuming the circumvallation to have been built as a single feature and further, that the inhabitants of Rojdi would not have bothered to enclose the South Extension trash dumps within their perimeter circumvallation, we can assign this feature to Phases 1 and 2 of the South Extension. This means that the main architectural period at the top of the Main Mound, the settlement on the South Extension, the Large Square Building, the Circumvallation and Gateway are close to one another in time and were built near the end of the protohistoric occupation of the site.

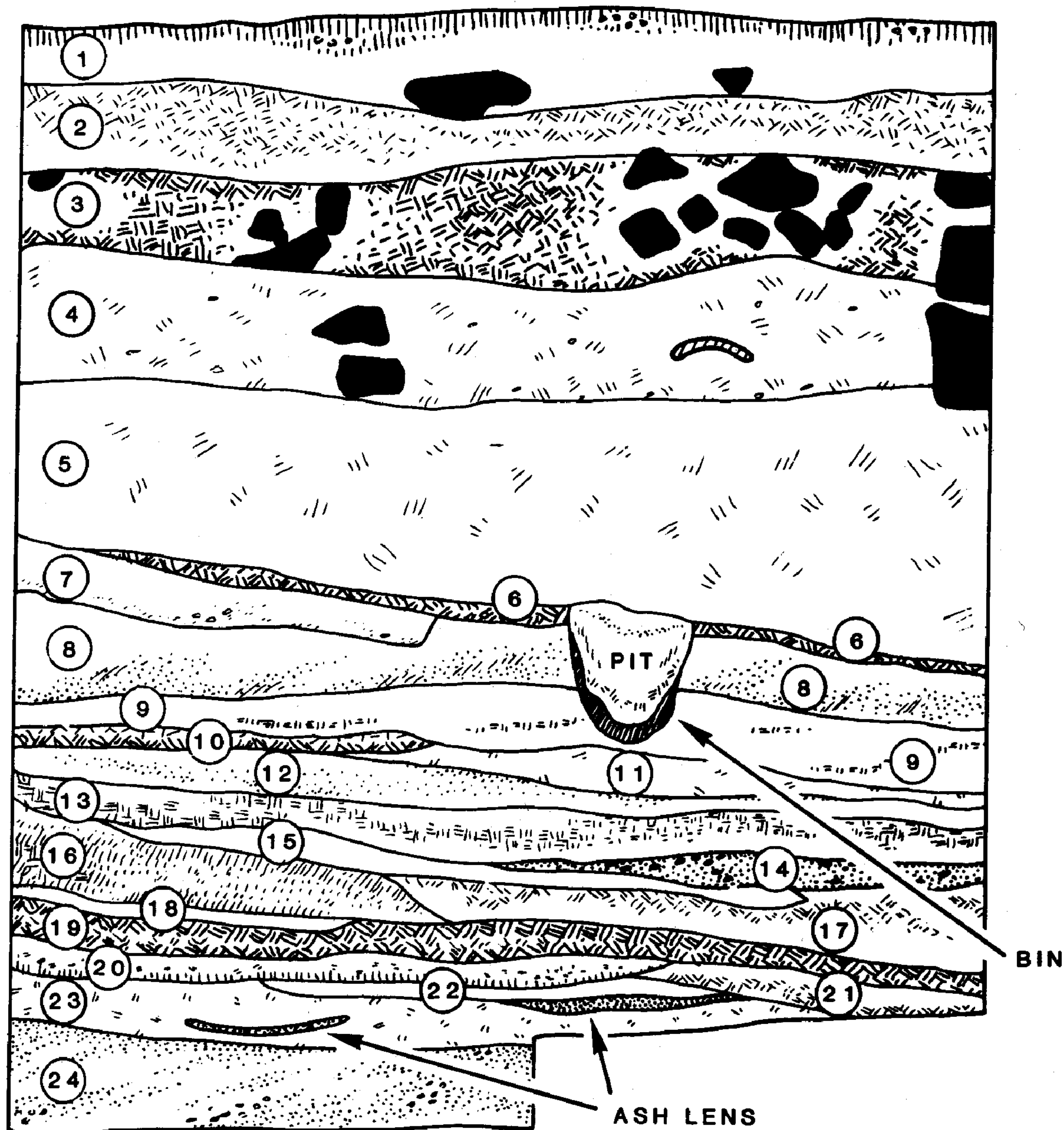


Fig. 26 Section Drawing from Trench 46L, Main Mound

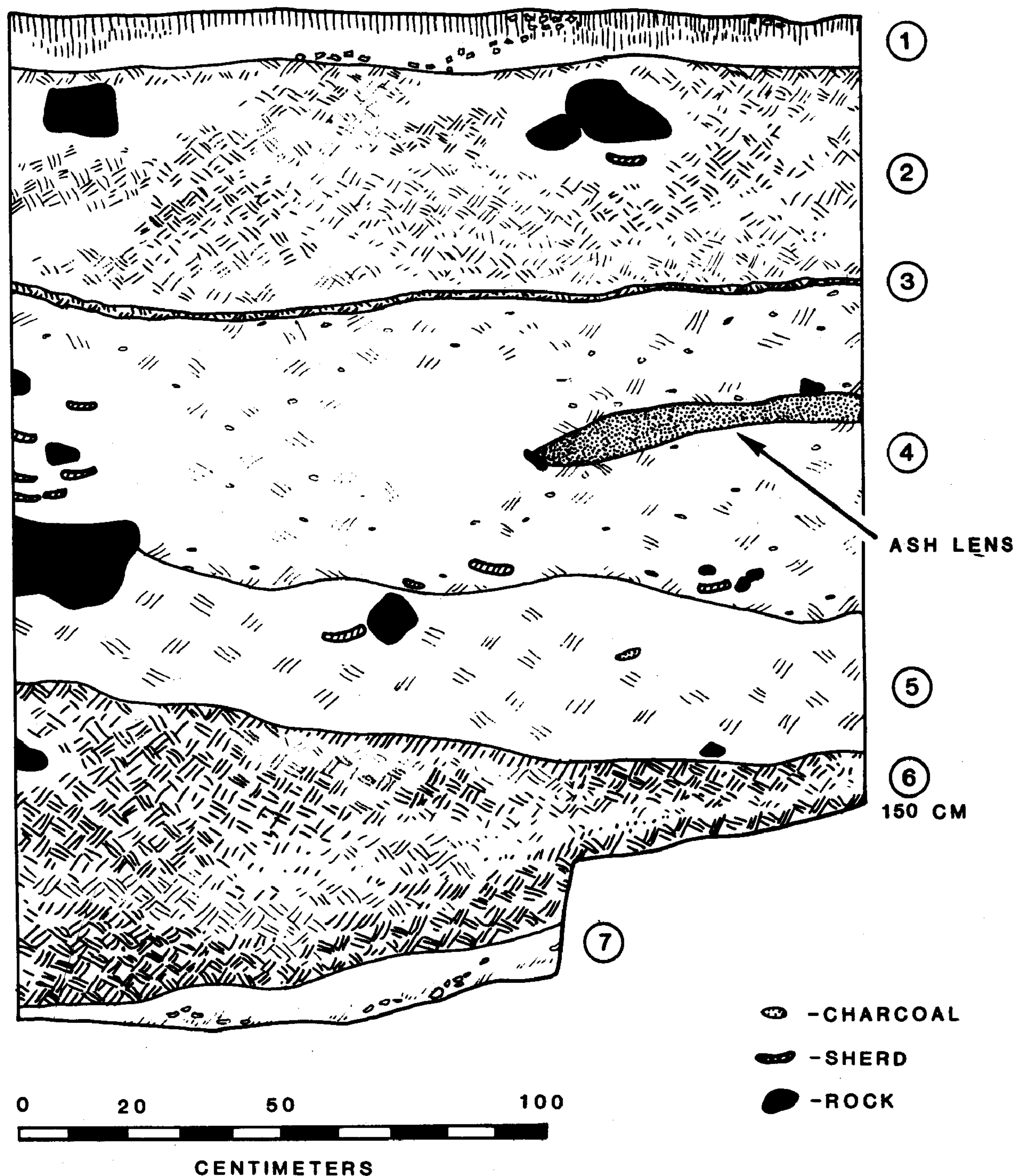


Fig. 27 Section Drawing from Trench 76N, South Extension

ROJDI MATERIAL CULTURE

THE SORATH HARAPPAN CERAMICS

Charles Frank Herman

Introduction

The following is an initial statement on the Rojdi pottery. Few references are made to other sites in this report since it is too early to make a thorough comparison between Rojdi, Lothal, Surkotada, Somnath and Rangpur. At the time of composition all of the sherds excavated during the four seasons of work at Rojdi had been sorted and counted, or weighed. The second sort, dealing with "diagnostic" materials was approximately half completed. More is said as follows of our two-phase sorting process. The more detailed aspects of analysis that emerge in this report come from an examination of material from trenches 46L (Main Mound) and 76N (South Extension), two of the five trenches that reached virgin soil at the site. While the data from these two locales are well examined, there is still much to be done with the material, and our conclusions stated in this report must be seen as preliminary. A full, detailed, final report on the ceramics will be published as a separate monograph on the project.

The periodization of the ceramics has necessitated the development of titles given to the various stages of the Rojdi pottery evolution. These are preliminary demarcations and no general periodization is claimed in this report.

The relatively small amount of historical pottery found at Rojdi is not discussed at all.

The consideration of vessel forms is relatively superficial since the elaboration of the morphological typology has not yet been finalized. This will be a focus of future research.

Methodology

Since the Rojdi excavations began in 1982/83, the pottery has been the focus of intensive recovery techniques and analysis. All of the earth from the excavation was either screened or went through flotation. *All* of the pottery from excavation and flotation was saved and will go through our analysis procedures, including being counted. Ceramics from Rojdi are examined in three consecutive stages:

1) Sorting and counting all of the sherds: "the diagnostic/non-daignostic sort".
2) The diagnostic sherd analysis.
3) Typological analysis.

The Lot System Used at Rojdi

The ceramic analysis was undertaken within the framework of the "lot system" used in excavating

the site. An excavation "lot" is the minimal data recovery unit. It can be a "dirt lot" used to record most of the day to day data recovered or a small find, a feature, a burial, a flotation sample or virtually any other data unit. Lots are intended to be bounded by the natural and imposed boundaries of a site. That is, no lot should cross. "natural" boundaries such as stratigraphic changes, architectural features or those of a feature or burial. A lot should not come from two sides of the same wall, or from both the inside and outside of a room or passageway. They are also intended to conform to the "imposed" boundaries of the excavation trenches. As a rule of thumb, no lot from Rojdi was taken from an excavation unit larger than one quadrant of one of our 5 by 5 meter trenches. The site was dug using the natural stratigraphy, therefore none of the lots crosses one of these boundaries, at least in principle. Generally, the trench supervisors dug in units between 5 and 7 centimeters in depth, provided that a stratigraphic break was not detected above that. Our object was to keep the physical dimensions of our lots small (no larger than 2 by 2 meters and 7 centimeters deep) so that our analysis could detect change and variation.

Sorting the Diagnostic/Non-diagnostic Sherds

The excavation strategy at Rojdi was directed toward an exhaustive recovery and recording of the archaeological assemblage. All of the pottery was saved, that is, at least those sherds that did not fall through the quarter inch mesh screens. During the diagnostic/non-diagnostic sort all of the sherds were handled and separated into "types" determined by the quality of the ware (fine, coarse), the color, decoration and surface treatment. Sorath Harappan, Early Historic and Medieval wares were separated. It should be emphasized that with the exception of the top levels of the Main Mound, historical materials are uncommon at Rojdi. Diagnostic pieces, that is sherds with information on vessel form, decoration, surface treatments and the like that would deserve further examination, were kept separately. All of the sherds were counted, or weighed at this time. A set of algorithms was developed that allow us to estimate sherd count from the weight of each of our "types."

This sort was undertaken for each of the approximately 2,500 excavation lots from Rojdi. While many individuals assisted in the diagnostic/non-diagnostic sort, all of their work was reviewed by Mr. Herman to ensure as much consistency as possible in this important process. The bulk of the non-diagnostic sherds were discarded following this first sort. The diagnostic sherds were all marked with the site name and lot number.

Two sets of ceramics were kept in their entirety. First, the pottery from the Large Square Building has all been saved. These storage jars and other vessels form a valuable reference collection. Second, the entire collection of ceramics from trench 46L, one of the sondages on the Main Mound that reached virgin soil, and has a long record of occupation at Rojdi, has also been kept in its entirety, as an archive from Rojdi.

The Diagnostic Sherd Sort

The work on Rojdi ceramics was expanded to a second level of analysis during the diagnostic sherd sort. At this stage diagnostic sherds were grouped by fabric and something we came to call "diagnostic attributes": vessel form, decoration, sherd re-use and sherds with functional features.

VESSEL FORMS

Sherds with enough shape to permit a complete or partial reconstruction were examined in some detail. Rims, necks, shoulders, bases, and body sherds with carination were the most common elements in this analysis. Joining sherds were also assembled as a part of this second sort. A great deal of attention was devoted to an examination of the rim sherds since they are the single greatest source of information on overall vessel form. The following vessel types were found: bowl, stud-handled bowl, jar, basin, pot, dish, dish-on-stand, lamp, jar stand and goblet. The goblet type may not be the "classic" Harappan type. The terminology for vessel description developed by

George Dales and J.M. Kenoyer (1986) has been used wherever possible. The range of vessel forms from Rojdi does not conform to those described by them from Mohenjodaro; therefore the entire Dales/Kenoyer system was not adopted for our classification.

DECORATED SHERDS

All sherds and complete vessels with decoration or special surface treatment are included in this category. Decoration includes painting (only if more than simple horizontal bands), graffiti, incisions, impressions, relief and patterns created by burnishing. Special surface treatments for Fine Wares include combinations of painted bands with slipped and unslipped zones. Horizontal corrugated bands are present on the Coarse Wares.

RE-USED SHERDS

A significant number of re-used sherds were discovered during analysis. These sherds have been used as "raw material" for the manufacture of a number of different kinds of artifacts. These include perforated and unperforated disks, all kinds of shaped, ground, notched or "rolled" sherds. Notched sherds are particularly common, especially on rims.

SHERDS WITH FUNCTIONAL FEATURES

Some sherds were found to have functional elements that relate to the use of the vessel. The most common of these are sherds with deep vertical incisions on the rim edge which were made after firing. They seem to have been to keep suspension ropes in place. Pre-firing potter's marks on the bottom of pots and perforated vessels are other functional elements that were examined at the second level sort. It should be obvious that some sherds are included in all four categories. Such "overlapping" was recorded as well.

The Ceramic Catalogue

A large number of sherds were drawn as part of the second sort. Each lot was scrutinized for both special and representative vessel shapes, including all decorated sherds, except for the special surface treatments. Approximately 10,000 pottery drawings have been completed by the Rojdi project draftsman Mr. S.P. Pandyan.

This drawing catalogue fulfills several purposes. First, it will give a complete view of the variations in vessel form as well as the complete corpus of decorations found at Rojdi. Second, it will provide a visual record which will allow us to trace the evolution of vesssel forms. Finally, the pottery illustrations facilitate the comparative study of different "districts" or structures within the site.

Preliminary Thoughts on the Rojdi Ceramic Corpus

The analysis of the Rojdi ceramic corpus is far from complete. All of the sherds have been handled once and counted. Rims, bases, decorated pieces and other diagnostics have been segregated from non-diagnostic sherds. Ceramics from the deep trenches at 46L and 76N have been analyzed in more detail. Ware types and morphological types have been enumerated and can be compared as percentages of the total ceramic assemblage from each trench. All of the vessel forms have been drawn and we have a clear sense of vessel form variation, decoration and the range of wares for these two trenches.

With the completion of the two different ceramic sorts, and the pottery drawings, we will have a morphological typology for the excavated remains from Rojdi. The next step will be to complete a detailed study of the five deep trenches that were excavated at Rojdi: two on the Main Mound (46L and 45K) and three on the South Extension (76N, 76L and 76H). This study will involve the recording of the frequencies of the different vessel types within stratigraphic context. This will

enable us to define the pottery evolution in detail as well as provide us with information for an accurate correlation between the various "districts" of the Rojdi settlement.

The pottery sequence at Rojdi has an evolution of the Sorath Harappan ceramic tradition similar to the one observed at Rangpur. The pottery of the various occupation levels at Rojdi can generally be compared to Rangpur IIA, IIB and IIC. The provisional organization of the Rojdi ceramics suggests a three-fold scheme with earliest Rojdi A followed in time by Rojdi B and Rojdi C. This scheme was, of course, not copied from Rangpur, but developed out of the Rojdi analysis as an independent outcome of the research. It does however, seem to suggest an integrating scheme for prehistoric Gujarat in the Bronze Age.

There is a close fit between the vessel forms of Rangpur IIA and Rojdi A, at least for the Fine Wares. The occurrence of straight-sided bowls, seemingly a marker for Rangpur IIB, in Rojdi A has occasioned us to make a subdivision in this phase. Rojdi A1 rests on virgin soil and is devoid of the straight-sided bowl. Rojdi A2 has this vessel form in small quantity. This division is based on the stratigraphy of trench 46L, with Rojdi A1 including the strata below the so-called "clay mound;" A2 including the clay mound and subsequent layers of Rojdi A.

At the end of the occupation at Rojdi the same "Late Sorath Harappan" Fine Wares as in Rangpur IIC were in use. This seems to confirm this as a separate phase as propounded by S.R. Rao (1963). As an aside it can be observed that the ceramics of Rangpur IIC are much more like those of Rangpur III than they are to Rangpur IIB, especially for the designs.

It is clear at Rojdi that a significant change occurred in the pottery between Rojdi A and C. The transition phase, Rojdi B, is a time during which most of the ceramic features of Rojdi A were altered. This is reviewed in some detail in this report, but briefly some of the major changes are as follows. A number of new vessel forms are introduced in Rojdi B, some of which are transitional between those of Rojdi A and Rojdi C. There are also painted design elements which begin in Rojdi B and carry through to the succeeding ceramic phase. But, in general it can be said that the pottery assemblage of Rojdi B is closer to that of Rojdi A than it is to Rojdi C. Statistical data will be presented to support the notion that the break between Rojdi B/C is more abrupt than the easy transition from Rojdi A to Rojdi B.

There is a small amount of pottery from Rojdi that can best be handled as separate typological categories: Prabhas Ware, Smooth Red Ware, a very few Lustrous Red Ware sherds and even fewer sherds of a Fine Black and Red Ware that seems to be of the Ahar type. The Prabhas Ware sherds are a part of Rojdi A, as well as Rojdi B and C. This early occurrence at the site supports the nation that Somnath (Prabhas Patan) is also an early settlement in Saurashtra. The Rojdi Smooth Red Ware, apparently related to the Micaceous Red Ware of Rangpur, is also found in Rojdi A, B and C. Lustrous Red Ware is only found in a Rojdi C context, but never in what can be considered fully secure contexts. At times this type is associated with lots of mixed Sorath Harappan/Historic materials. At other time Lustrous Red Ware was in the top two strata on the South Extension, so close to the surface for us to doubt primary associations. It is not yet known if the near absence of Lustrous Red Ware is due to chronological and spatial distance and an investigation of this is a priority for the Rojdi project. Finally, a few Fine Black and Red Ware sherds have been found in both Rojdi B and C.

The Ceramics from Trench 46L and 76N

As noted above, trenches 46L on the Main Mound and 76N on the South Extension of Rojdi are the most completely analyzed units from our excavation. The *detailed* observations on the pottery, given in the following section of this report, apply to these trenches, as noted in the text. Section drawings of trenches 46L and 76N appear as Figures 26 and 27.

The Pottery of Rojdi A

ROJDI A: SORATH HARAPPAN FINE WARES : FINE RED, FINE BUFF, FINE GREY
46L : 52 percent of the total number of sherds recovered from Rojdi A in 46L.
76N : 61 percent of the total number of sherds recovered from Rojdi A in 76N.

The Fine Red, Fine Buff, and Fine Grey Wares of Rojdi are all clearly a part of the general Harappan ceramic tradition. These three wares, distinct from one other only in their fabric color, may be seen as an homogenous body of material in terms of ceramic production. The quality of the fabric, slips, vessel forms, styles and motifs are fundamentally the same. It is common for red slips to have been applied to Fine Red fabrics and for brown slips to cover Fine Buff Ware. At this moment it is not known if the difference in fabric color of the Rojdi Fine Wares is only to the manipulation of firing techniques or whether it was achieved by using different clays.

The fabric is made of well, sometimes very well, levigated clay to which fine sand has been added as a degraissant. At times a small amount of mica also occurs. The Fine Wares of Rojdi A are always extremely well fired. For the Fine Red Ware, fabric color ranges as noted in the Munsell Soil Color Chart from pink to yellowish red to light red. The Buff Ware is white, very pale yellowish brown or even pale olive. Gray to dark gray is the color range for the Fine Grey Ware. These wares are very hard. They have a metallic sound when they are struck and they produce sherds with sharp regular edges.

Slip colors are as follows : Fine Red Ware; weak red, reddish brown to light red. Fine Buff Ware slips range from brown, to very pale brown. Dark gray to black slips occur on the Fine Grey Ware. Occasionally black slips occur on Fine Red and Fine Buff Wares. In general slips have been carefully applied.

Slip decoration was achieved by the juxtaposition of slipped and unslipped bands, combined with painted bands on the shoulders of pots and jars and the interior of bowls.

Many of the vessels have a smooth surface. This occurs on both slipped as well as on unslipped parts of the vessel. At times this gives a faint impression of a glaze-like surface. Some vessels have blistered slips. These occur most commonly on vessels with heavier than average temper for the Fine Wares. Only a few Fine Ware vessels were left totally unslipped.

In 46L during Rojdi A the Fine Wares account for approximately 52 percent of the total pottery recovered from excavation in this trench. The Fine Red Ware fluctuates between 50 and 83 percent of the Fine Ware total, depending on the specific stratum within 46L. Fine Grey Ware is present in very small quantities.

ROJDI A: SORATH HARAPPAN FINE WARE VESSEL FORMS
46L : 74 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi A in 46L.
76N : 72 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi A in 76N.

It can be observed, at least in a preliminary way, that the range of vessel forms is quite restricted, involving only bowls, small to medium sized pots, jars, 'perforated pots', basins, dishes, the dish-on-stand and perhaps the goblet. Save for the dish-on-stand all vessel forms have flat bases.

ROJDI A: SORATH HARAPPAN FINE WARE BOWLS (Figure 28)
46L : 76 percent of the Fine Ware rims recovered from Rojdi A in 46L.
46N : 67 percent of the Fine Ware rims recovered from Rojdi A in 76N.

This vessel type is the most common in all three phases of the Sorath Harappan occupation at Rojdi; always approximately two-thirds of the Fine Ware vessels, based on rim sherd frequency. Of the Fine Wares recovered from trench 46L bowls increase from 68 percent in subphase A1 to 79 percent in subphase A2. Taking all the wares of Rojdi A, 46L, total rim recovery of Fine Ware bowls increases from 36 percent in Rojdi A1 to 41 percent in Rojdi A2.

Rojdi A Fine Ware bowls are overwhelmingly convex sided. The majority of these have a

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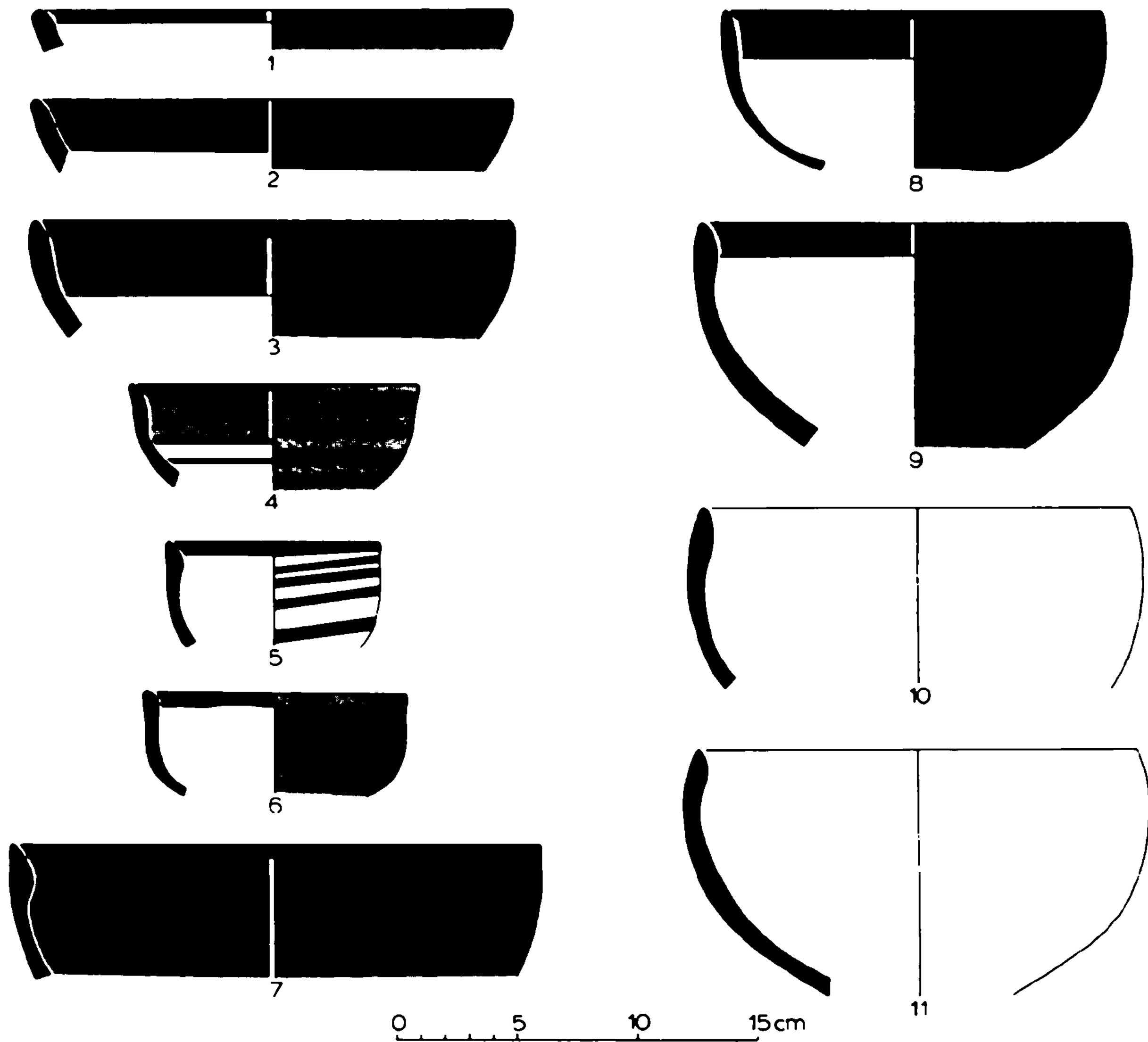


Fig. 28 Rojdi A, Fine Ware Bowls

diameter at the top of the rim which is slightly smaller than the maximum diameter of the vessel; but an "open mouth" type also occurs. The most common rim morphology for all three phases has a bulge, or thickening on the interior surface as seen in Figure 28, number 7. Over time this bulge has a tendency to become more pronounced. The bowls always have a non-contiguous, unmarked discoid base (Dales and Kenoyer 1986: Figure F, IV, A).

The absence of stud-handled bowls in the Rojdi A Fine Wares is noteworthy. This vessel form is present, but only in the "non-Harappan" that is, the Prabhas and Smooth Red Wares (see Figures 59 and 60). Stud-handles are squat, hand-made elements on these vessel forms. Later, in Rojdi B, Fine Ware, stud-handled bowls are fabricated with wheel-thrown handles.

Figure 28: Rojdi A Sorath Harappan Fine Ware Bowls
Figure 28, Number 1: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 18.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim.
Interior : light brown (7.5 YR 6/4) unslipped surface ("slipped-cum-unslipped" surface treatment).
Figure 28, Number 2: Rojdi A Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 19.
Exterior and Interior : grayish brown (10 YR 5/2) slip.
Figure 28, Number 3 : Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 23.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim, with a very dusky red (10 YR 3/4) horizontal painted band on the rim.
Interior : light brown (7.5 YR 6/4) unslipped surface on middle and lower part of the vessel (the slipped band, painted band and unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 28, Number 4: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 12.
Exterior : brown (7.5 YR 5/4) slip, with multiple weak red (10 R 4/4) painted horizontal bands.
Interior : reddish brown (5 YR 4/3) painted horizontal bands on the light brown (7.5 YR 6/4) slipped upper part of the bowl and on the very pale brown (10 YR 7/4) unslippped lower part of the bowl surface (The slipped band, painted bands and unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 28, Number 5: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 13.
Exterior : multiple very dusky red (10 YR 3/4) unevenly painted horizontal bands on a light brown (7.5 YR 6/4) to reddish brown (2.5 YR 6/4) to red (2.5 YR 5/6) shaded slip.
Interior : very pale brown (10 YR 7/4) unslipped surface with a very dusky red (10 YR 3/4) painted horizontal band on the rim. Carination on interior of the rim.
Figure 28, Number 6: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 13.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish yellow (5 YR 7/6) unslipped surface, with a reddish brown (5 YR 4/3) painted horizontal band on the rim.
Figure 28, Number 7: Rojdi A Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 11.
Exterior and Interior : reddish brown (5 YR 4/3) slip, with a grayish brown (10 YR 5/2) painted horizontal band on the rim.
Figure 28, Number 8: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 16.
Exterior : red (10 R 5/6) slip.
Interior : yellowish red (5 YR 5/6) slip on the upper part, and light brown (7.5 YR 6/4) unslipped surface on the lower part of the bowl, with a weak red (10 R 5/3) painted horizontal band on the rim (the slipped band, painted band and unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 28, Number 9: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 13.
Exterior : reddish yellow (7.5 Y/R 6/6) to reddish brown (2.5 YR 6/4) shaded slip expanding over interior of rim, with multiple reddish brown (5 YR 4/3) painted horizontal bands; reddish yellow

(7.5 Y/R 6/6) unslipped base (the painted bands, slipped, and unslipped surfaces are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior: reddish brown (5 YR 4/3) slip on the upper part, and yellow (10 YR 7/6) unslipped surface on the middle and lower part of the bowl ("slipped-cum-unslipped" surface treatment).
Figure 28, Number 10: Rojdi A Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 12.
Exterior and Interior : slipped (?) or unslipped (?) surfaces (weathered); brown (7.5 YR 5/4) fabric.
Figure 28, Number 11: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 46L, strata 16 and 18.
Exterior and Interior : brown (7.5 YR 5/4) unslipped surfaces.

ROJDI A: SORATH HARAPPAN FINE WARE POTS (Figure 29)
46L : 16 percent of the Fine Ware rims recovered from Rojdi A in 46L.
76N : 18 percent of the Fine Ware rims recovered from Rojdi A in 76 N.

Rojdi A Fine Ware pots are small to medium in size. They are second to bowls in their frequency in trench 46L. The most characteristic pot forms are seen in Figure 29. Pots of medium size, with narrow mouths globular bodies, and pointed or slightly rounded, everted rims (Figure 29, numbers 1-5) occur only in Rojdi A, trenches 46L and 76N. Later, in Rojdi B (Figure 41) other types occur. All pots have bases similar to the bowls or have a contiguous flat base with concave sided walls.

Figure 29: Rojdi A Sorath Harappan Fine Ware Pots

Figure 29, Number 1: Rojdi a Sorath Harappan Fine Buff Ware Pot. Trench 46L, strata 18 and 27.
Exterior : Very grayish dark brown (10 YR 3/2) slip expanding over interior of rim.
Interior : pale yellow (5 Y 8/3) unslipped surface.
Figure 29, Number 2: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 16.
Exterior : reddish brown (5 YR 4/3) slip, with dark brown (7.5 YR 3/2) painted horizontal bands.
Interior : yellow (10 YR 7/6) unslipped surface.
Figure 29, Number 3: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 23.
Exterior : light brown (7.5 YR 6/4) unslipped surface, with weak red (10 R 5/3) slipped band on shoulder, and dark gray (10 YR 4/1) painted horizontal bands (the slipped band, painted bands and unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : light brown (7.5 YR 6/4) unslipped surface.
Figure 29, Number 4: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 23.
Exterior : weak red (10 R 5/3) slip expanding over interior of rim, with weak red (10 R 4/4) painted horizontal bands.
Interior : very pale brown (10 YR 7/4) unslipped surface ("slipped-cum-unslipped" surface treatment).
Figure 29, Number 5: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 13.
Exterior : light brown (7.5 YR 6/4) unslipped surface, with weak red (10 R 4/4) slipped rim and neck, and dark gray (10 YR 4/1) painted horizontal bands (the slipped band on the rim, the painted bands and unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : red (10 R 4/6) unslipped surface.
Figure 29, Number 6: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, ; stratum 10.
Exterior : weak red (10 R 5/3) slip expanding over interior of rim turning into red (2.5 YR 5/6), with dark gray (10 YR 4/1) painted horizontal bands.
Interior : reddish yellow (7.5 Y/R 6/6) to very pale brown (10 YR 7/4) shaded unslipped surface, with a dark gray (10 YR 4/1) painted horizontal band on the rim

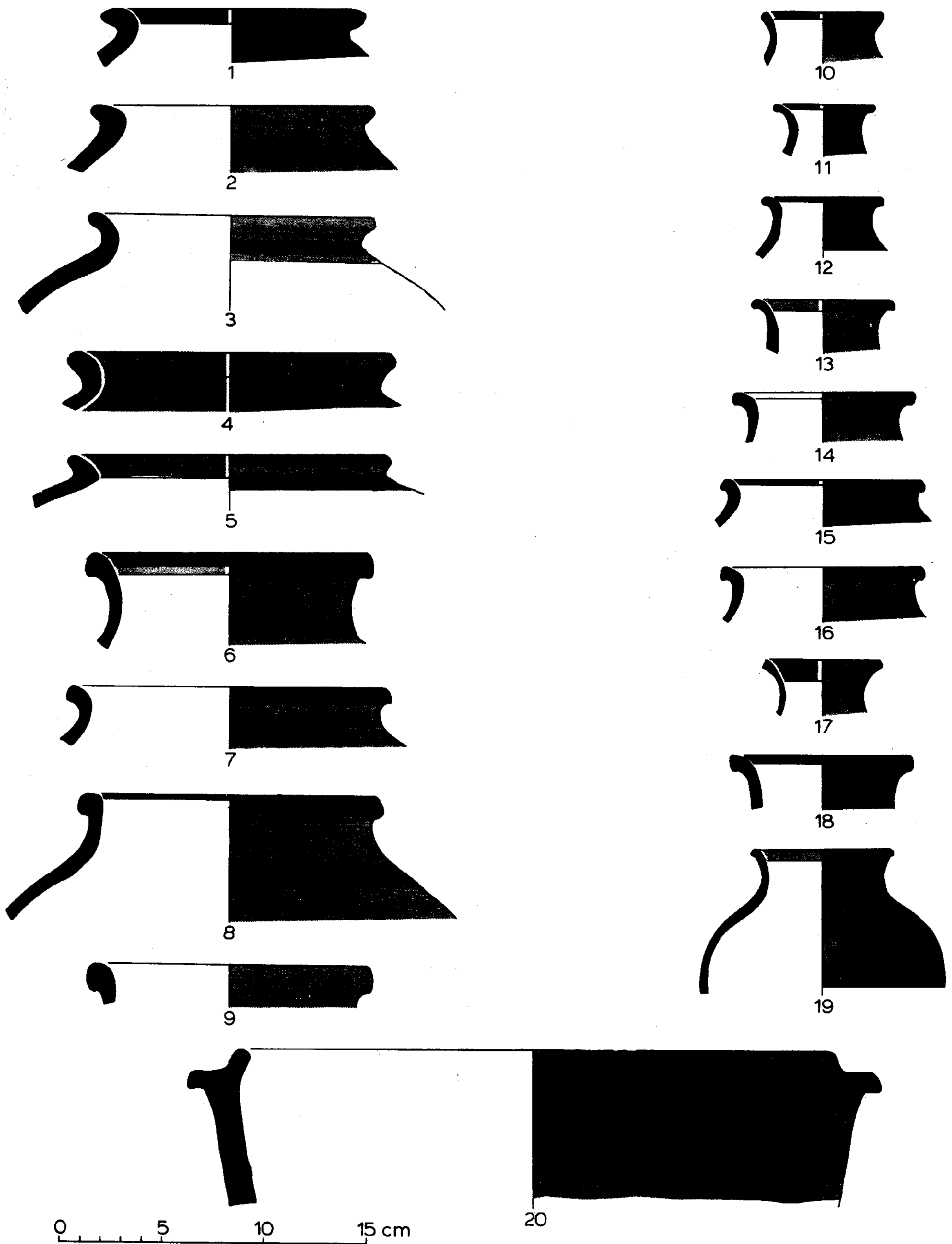


Fig. 29 Rojdi A, Fine Ware Pots

(The slipped and painted band on the rim, and the unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 29, Number 7: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 23.
Exterior : red (10 R 5/6) slip, with black (10 YR 2/1) painted horizontal bands.
Interior : reddish brown (2.5 YR 6/4) unslipped surface.
Figure 29, Number 8: Rojdi A Sorath Harappan Fine Buff Ware Pot. Trench 46L, strata 13 and 18.
Exterior : dusky red (2.5 YR 3/2) slip, with multiple black (10 YR 2/1) painted horizontal bands.
Interior : pale brown (10 YR 6/3) unslipped surface, with a black (10 YR 2/1) painted band on the rim.
Figure 29, Number 9: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 12.
Exterior : light red (10 R 6/6) slip.
Interior : reddish yellow (5 YR 7/6) unslipped surface.
Figure 29, Number 10: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 19.
Exterior : red (10 R 5/6) slip, with multiple dark gray (10 YR 4/1) painted horizontal bands.
Interior : reddish yellow (5 YR 7/6) unslipped surface with a red (10 R 5/6) slipped and a dark gray (10 YR 4/1) painted horizontal band on the rim (the slipped and painted band on the rim, and the unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 29, Number 11: Rojdi A Sorath Harappan Fine Grey Ware Pot. Trench 46L, stratum 13.
Exterior : black (10 YR 2/1) slip expanding over interior of rim.
Interior : dark gray (10 YR 4/1) unslipped surface.
Figure 29, Number 12: Rojdi A Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 16.
Exterior : brown (7.5 YR 5/3) slip with dark gray (10 YR 4/1) painted horizontal bands.
Interior : light brownish gray (10 YR 6/2) unslipped surface, with a dark gray (10 YR 4/1) painted horizontal band on the rim.
Figure 29, Number 13: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 19.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim.
Interior : red (10 R 4/6) unslipped surface.
Figure 29, Number 14: Rojdi A Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 13.
Exterior : weak red (10 R 5/3) slip.
Interior : brown (10 YR 5/3) unslipped surface.
Figure 29, Number 15: Rojdi A Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 23.
Exterior : grayish brown (10 YR 5/2) slip expanding over interior of rim.
Interior : light brownish gray (10 YR 6/2) unslipped surface.
Figure 29, Number 16: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 13.
Exterior : reddish brown (2.5 YR 6/4) slip, with a dark brown (7.5 YR 3/2) painted horizontal band on the rim.
Interior : red (10 R 4/6) unslipped surface.
Figure 29, Number 17: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 24.
Exterior : very dusky red (10 YR 3/4) slip expanding over interior of rim.
Interior : reddish brown (5 YR 4/3) unslipped surface.
Figure 29, Number 18: Rojdi A Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 13.
Exterior : pale brown (10 YR 6/3) slip.
Interior : very pale brown (10 YR 7/3) unslipped surface with a brown (7.5 YR 5/3) painted horizontal band on the rim.
Figure 29, Number 19: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, strata 11 and 12.
Exterior : light red (10 R 6/6) slip expanding over interior of rim, with multiple dark gray (10 YR 4/1) painted horizontal bands.
Interior : unslipped surface with a very dusky red (10 YR 3/4) painted horizontal band on the slip of

the rim (the slipped and painted band on the rim, and the unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Figure 29, Number 20: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 11.
Exterior : reddish brown (5 YR 4/3) slip on the neck part of the vessel with dark brown (7.5 YR 3/2) painted horizontal band on ledge; light brown (7.5 YR 6/4) unslipped surface on the shoulder of the vessel (the slipped and painted band on the rim, and the unslipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect"); multiple engraved notches on the rim and ledge.
Interior : red (10 R 4/6) unslipped surface.

ROJDI A: SORATH HARAPPAN FINE WARE JARS (Figure 30)
46L: 1 percent of the Fine Ware rims recovered from Rojdi A in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi A in 76N.

This vessel is very rare, represented by only one form: a small neckless vessel with a bulbous body and square undercut rim.

Figure 30: Rojdi A Sorath Harappan Fine Ware Jars

Figure 30, Number 1: Rojdi A Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 13.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim.
Interior : unslipped surface.

ROJDI A: SORATH HARAPPAN FINE WARE BASINS (Figure 31)
46L: 1 percent of the Fine Ware rims recovered from Rojdi A in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi A in 76N.
Fine Ware basins have three forms as seen on Figure 31.

Figure 31: Rojdi A Sorath Harappan Fine Ware Basins

Figure 31, Number 1: Rojdi A Sorath Harappan Fine Buff Ware Basin. Trench 46L, stratum 20.
Exterior : dark gray (10 YR 4/1) slip, with a black (10 YR 2/1) painted horizontal band on the rim.
Interior : brown (7.5 YR 5/3) slip.
Figure 31, Number 2: Rojdi A Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 20.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over top of rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.
Figure 31, Number 3: Rojdi A Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 16.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish yellow (7.5 Y/R 6/6) unslipped surface.

ROJDI A: SORATH HARAPPAN FINE WARE DISHES (Figure 32)
46L: 5 percent of the Fine Ware rims recovered from Rojdi A in 46L.
76N: 5 percent of the Fine Ware rims recovered from Rojdi A in 76N.

There are two basic Rojdi A Fine Ware dish types: dish with straight to slightly incurved side and convex sided walls with or without blunt carination. The last type is the most popular and has a variety of sturdy rims. All of them are shallow, with small, flat bases. Dishes with a pronounced carinated shoulder and externally projecting rim are, as opposed to Rangpur IIA and Lothal A, conspicuous by their absence.

Figure 32: Rojdi A Sorath Harappan Fine Ware Dishes

Figure 32, Number 1: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 20.
Exterior : red (2.5 YR 5/6) slip expanding over interior of rim.
Interior : reddish yellow (5 YR 7/6) slip.

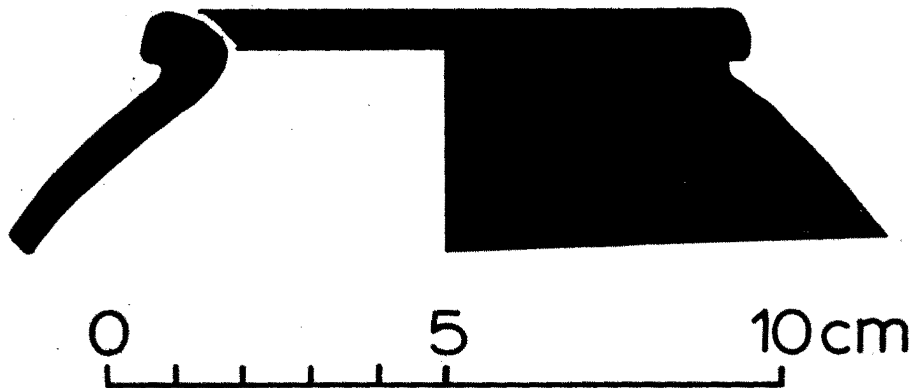


Fig. 30 Rojdi A. Fine Ware Jars

1

2

3

0 5 10 15 cm

Fig. 31 Rojdi A, Fine Ware Basins

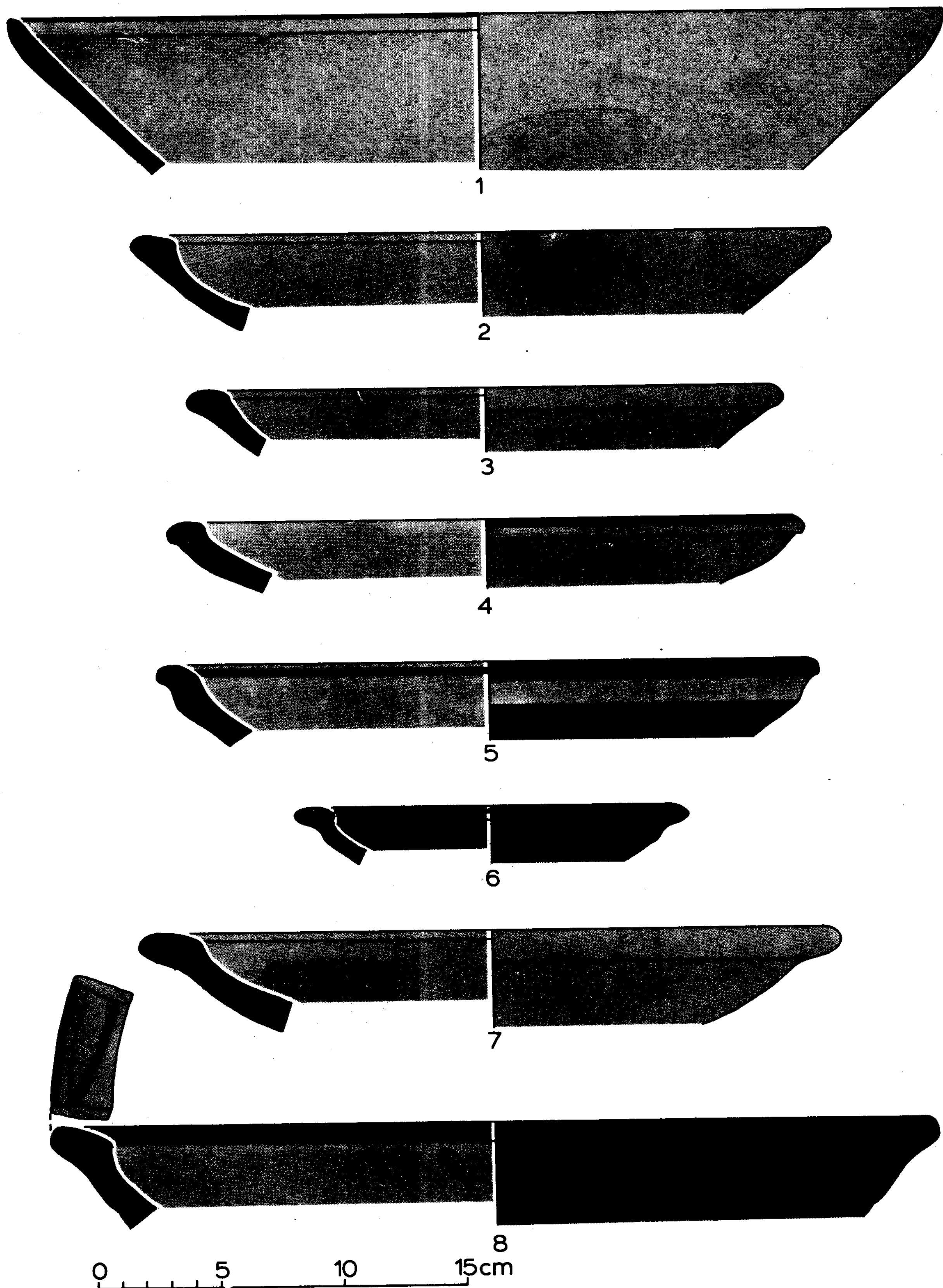


Fig. 32 Rojdi A, Fine Ware Dishes

Figure 32, Number 2: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 20.
Exterior and Interior : reddish brown (2.5 YR 6/4) slip.
Figure 32, Number 3: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 23.
Exterior and Interior : light red (10 R 6/6) slip.
Figure 32, Number 4: Rojdi A Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 10.
Exterior : very dusky red (10 YR 3/4) slip, with a painted horizontal band on the rim.
Interior : weak red (10 R 4/2) slip.
Figure 32, Number 5: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 13.
Exterior : reddish brown (2.5 YR 6/4) to dark gray (10 YR 4/1) shaded slip, with a very dusky red (10 YR 3/4) painted horizontal band on the rim.
Interior : reddish brown (5 YR 4/3) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the interior of the rim.
Figure 32, Number 6: Rojdi A Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 23.
Exterior : brown (7.5 YR 5/3) slip.
Interior : grayish brown (10 YR 5/2) slip, with a pink (7.5 YR 7/4) painted horizontal band on the rim.
Figure 32, Number 7: Rojdi A Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 23.
Exterior and Interior : very dusky red (10 YR 3/4) slip.
Figure 32, Number 8: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 18.
Exterior : reddish gray (5 YR 5/2) slip, with a dark grayish brown (10 YR 4/2) painted horizontal band on the rim.
Interior : yellowish red (5 YR 5/6) to grayish brown (10 YR 5/2) shaded slip; 'hanging loops' as "complex painted design" in brown (10 YR 5/3) and red (10 R 4/6) on top of the rim.

ROJDI A: SORATH HARAPPAN FINE WARE DISHES-ON-STAND (Figure 33)
46L: Undetermined percent of the Fine Ware rims recovered from Rojdi A in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi A in 76N.

The frequency of the vessel form is determined by the number of top-dish rims when there is evidence of a join to a pedestal. No dish rim sherds with remnants of this join were recovered in Rojdi A of 46L. The stands of the dishes were not included in the enumeration of rims to avoid double counting. Sherd counts for stand bases are small for this phase: 46L has five examples and 76N has three. The stands seem to be generally similar to those from Rangpur.

Figure 33: Rojdi A Sorath Harappan Fine Ware Stands of Dish-on-Stand

Figure 33, Number 1: Rojdi A Sorath Harappan Fine Grey Ware Stand of a Dish-on-Stand. Trench 46L, stratum 13.
Exterior : dark gray (10 YR 4/1) slip, with a partly dark grayish brown (10 YR 4/2) unslipped surface on the stand rim ("slipped-cum-unslipped" surface treatment).
Interior : dark grayish brown (10 YR 4/2) unslipped surface.
Figure 33, Number 2: Rojdi A Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 16.
Exterior : red (10 R 5/6) slip, with a partly light brown (7.5 YR 6/4) unslipped surface on the stand rim ("slipped-cum-unslipped" surface treatment).
Interior : light brown (7.5 YR 6/4) unslipped surface.
Figure 33, Number 3: Rojdi A Sorath Harappan Fine Grey Ware Stand of a Dish-on-Stand. Trench 46L, stratum 13.
Exterior and Interior : dark gray (10 YR 4/1) slip. Striation lines on exterior surface of stand.
Figure 33, Number 4: Rojdi A Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 16.

Exterior : red (10 R 5/6) slip and a pink (7.5 YR 7/4) unslipped band on the stand rim, with a black (10 YR 2/1) painted horizontal band (the slipped surface, painted and unslipped band on the stand rim are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : very pale brown (10 YR 7/4) unslipped surface.
Figure 33, Number 5: Rojdi A Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 13.
Exterior : reddish brown (2.5 YR 6/4) slip; reddish brown (2.5 YR 6/4) unslipped horizontal band on the stand rim ("slipped-cum-unslipped" surface treatment).
Interior : reddish brown (2.5 YR 6/4) unslipped surface.

ROJDI A: SORATH HARAPPAN FINE WARE GOBLETS (Figure 34)
46L: more than 1 percent of the Fine Ware bases recovered from Rojdi A in 46L.
76N: 0 percent of the Fine Ware bases recovered from Rojdi A in 76N.

Goblets may be present by very rare at Rojdi. It is extremely difficult to identify a goblet on the basis of the rim. The defining characteristic is its narrow solid base and its body. Only four "goblet" bases have been identified so far. One was uncovered in Phase A levels of 46L. None come from 76N. The 46L specimen (Figure 34) could have been part of a narrow based pot or jar. This observation may also be true for the illustrated Rangpur "goblets" (Rao 1963: Figure 23, numbers 83a, 83b, 84, 85). In any event the "goblets" from Rangpur and Rojdi are different from those of Mohenjodaro, Surkotada and Lothal.

Figure 34: Rojdi A Sorath Harappan Fine Ware Goblet (?)

Figure 34, Number 1: Rojdi A Sorath Harappan Fine Red Ware Goblet Base (?) Trench 46L, stratum 22.
Exterior and Interior : reddish gray (5 YR 5/2) unslipped surface.

ROJDI A: SORATH HARAPPAN FINE WARE BOTTLE (Unillustrated)

One of the lots from Rojdi A of 76N contained an example of a bottle form in Sorath Harappan Fine Ware. The context of this lot suggests that it may have mixed Rojdi A/B material; therefore some qualification is given to the exact periodization of this vessel form.

ROJDI A: FINE WARE SURFACE TREATMENTS AND DECORATIONS

The Rojdi A Fine Ware vessels are generally slipped, except for the base, and painted with horizontal bands. Approximately 30 percent of the Fine Ware sherds of 46L bear one or more horizontal painted bands. This percentage suggests that a majority of the Rojdi A Fine Ware vessels were decorated in some way. In Rojdi B and C there is a marked decline in this kind of decoration. It is unclear whether this is due to less painting or to the fact that the vessels in the later phases are generally larger, yielding more sherds.

There is a near absence of "complex painted decoration" that is more elaborate than simple painted bands. In Rojdi Ai of trench 46L only 0.7 percent of the Fine Ware sherds have "complex painted decoration," and only 0.3 percent have graffiti. In Rojdi A2 that is an increase, with 2 percent of the Fine Ware sherds having "complex painted decoration" and 2 percent with graffiti.

It is difficult to interpret these percentages because numbers can vary substantially from trench to trench and from layer to layer. Also, it is not presently possible to accurately estimate the number of vessels which were actually decorated. Only experiments where pots are broken and resulting sherd counts are taken, can help in understanding this relationship. But, from the sherd count at Rojdi it is obvious that decoration more complex than simple painted bands was never common.

Characteristic of Rojdi A is the straightforward quality of the more complex painted designs. These designs were applied in dark red, black or dark brown paints to all vessel forms except bowl and goblet. The patterns include:

1) Vertical lines on the rims of pots, jars and basins.

2) Simple hanging loops on dish rims.
3) Grouped vertical lines intercutting horizontal bands on the shoulders of pots and the interior surface of dishes.
4) Combinations of simple and hatched lozenges on the shoulders of pots and the interior surface of dishes.
5) Dots on or between horizontal bands located on the jar/pot shoulders.
6) Wavy lines. This last pattern was only found on one tiny sherd and is uncharacteristic for this phase.

An interesting pattern of manipulating slips, painted bands and unslipped surfaces has appeared in the Rojdi ceramic corpus, especially the bowls. By juxtaposing broad slipped and unslipped surfaces ("slipped-cum-unslipped surface treatment") and using dark painted bands, the ancient potter was able to create relatively complex, at times aesthetically pleasing, patterns consisting of only the three elements just noted. This kind of decoration is often accentuated by placing painted dark red to black horizontal bands on the rim and/or on the junction of the slipped and unslipped zones. A bowl from Rojdi A with this kind of decoration, called the *bichrome effect*, is seen in Figure 28, number 4. The few graffiti in Rojdi A are mostly very simple, with no identifiable signs of the Indus script. Three or four isolated vertical lines incised on pot shoulders or on the interior of bowls are common. Other graffiti include the upside down trident and simple cross, which may have symbolic meaning, (Figure 65, numbers 1 to 5).

ROJDI A: SORATH HARAPPAN COARSE WARES: COARSE BLACK AND RED, COARSE RED AND COARSE GREY

46L: 43 percent of the total pottery recovered from Rojdi A in 46L.
76N: 38 percent of the total pottery recovered from Rojdi A in 76N.

The three Coarse Wares present in all three ceramic phases at Rojdi are already noted. Coarse Black and Red Ware is abundant in Rojdi A: in trench 46L it is 75 percent of the total Coarse Wares and in 76N it is 83.5 percent. Coarse Black and Red Ware is characterized by a black inner surface and core, and a dark red to brown outer surface. The Coarse Grey Ware is dark gray to black. Coarse Red Ware has dark red to brown surfaces, often with a gray core. The technological and material bases for these differences will be investigated later.

The Coarse Wares of Rojdi A are very well baked and unlike those of the later phases, they do not crumble. The fabric of the three Wares has the same dense gritty texture. Preliminary observations indicate that they were tempered with a mixture of river sand to which vegetable matter was frequently added. All vessels are coated with a thick slip extending from the inner surface of the rim, over this feature and down to the exterior of the upper body. The slip is almost always burnished showing a sharp contrast with the unslipped lower part of the body.

ROJDI A: SORATH HARAPPAN COARSE WARE POTTERY FORMS

46L: 26 percent of the rims recovered in both Fine and Coarse Wares from Rojdi A in 46L.
76N: 28 percent of the rims recovered in both Fine and Coarse Wares from Rojdi A in 76N.

Although Coarse Wares are used in profusion during Rojdi A their forms are restricted in number. Almost all vessels are pots or jars with very few bowls, basins and dishes.

ROJDI A: SORATH HARAPPAN COARSE WARE BOWLS (Figure 35)

46L: 4 percent of the Coarse Ware rims recovered from Rojdi A in 46L.
76N: 0 percent of the Coarse Ware rims recovered from Rojdi A in 76N.

Relatively few Coarse Ware bowl sherds were found at Rojdi. Still, a clear downwards trend in their number can be observed throughout the occupation, at least in 46L where the following percentages of the total Coarse Ware rims were calculated: 7.4 percent in Rojdi Ai; 3.1 percent in Rojdi A2; 1.0 percent in Rojdi B and none in the latest phase Rojdi C. The samples from Rojdi A

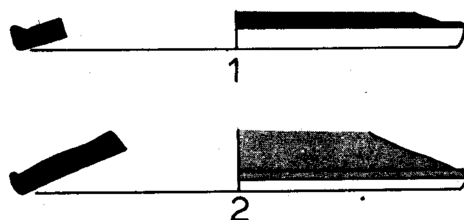


Fig. 33 Rojdi A, Fine Ware Dishes-on-Stand

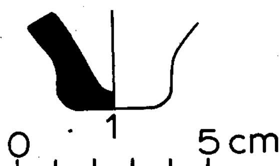
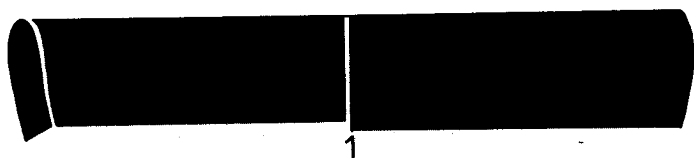
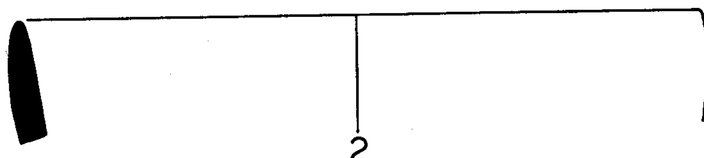


Fig. 34 Rojdi A, Fine Ware Goblets





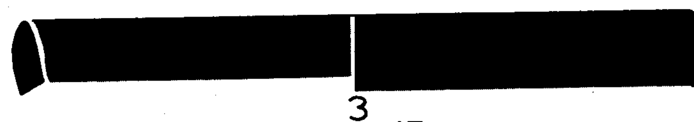


Fig. 35 Rojdi A, Coarse Ware Bowls

indicate that only convex sided shapes with simple, pointed to slightly rounded rims occur. This vessel type is in phase Rojdi A the only Coarse Ware shape with thin sides. The inner and outer surfaces were normally both coated with a thick burnished slip.

Figure 35: Rojdi A Sorath Harappan Coarse Ware Bowls

Figure 35, Number 1: Rojdi A Sorath Harappan Coarse Grey Ware Bowl. Trench 46L, stratum 13.
Exterior and Interior : black (10 YR 2/1) slip.
Figure 35, Number 2: Rojdi A Sorath Harappan Coarse Grey Ware Bowl. Trench 46L, stratum 23.
Exterior : dark grayish brown (10 YR 4/2) slip.
Interior : dark gray (10 YR 4/1) unslipped surface.
Figure 35, Number 3: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Bowl. Trench 46L, stratum 20.
Exterior : pale brown (10 YR 6/3) slip.
Interior : black (10 YR 2/1) slip.

ROJDI A: SORATH HARAPPAN COARSE WARE POTS (Figure 36)
46L: 56.5 percent of the Coarse Ware rims recovered from Rojdi A in 46L.
76N: 54 percent of the Coarse Ware rims recovered from Rojdi A in 76N.

The Rojdi A Coarse Ware pots are all medium to small in size and have similar ovoid to globular shapes.

Figure 36: Rojdi A Sorath Harappan Coarse Ware Pots

Figure 36, Number 1: Rojdi A Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 20.
Exterior and Interior: red (10 R 4/6) slip.
Figure 36, Number 2: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 16.
Exterior : dark grayish brown (10 YR 4/2) to dark gray (10 YR 4/1) to black (10 YR 2/1) shaded slip expanding over interior of rim; two horizontal incised lines on the shoulder.
Interior : black (10 YR 2/1) unslipped surface;
Figure 36, Number 3: Rojdi A Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 12.
Exterior : red (10 YR 4/6) to dark grayish brown (10 YR 4/2) slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior : dark grayish brown (10 YR 4/2) unslipped surface.
Figure 36, Number 4: Rojdi A Sorath Harappan Coarse Grey Ware Pot. Trench 46L, stratum 13.
Exterior : dark gray (10 YR 4/1) to black (10 YR 2/1) slip expanding over interior of rim; a corrugated horizontal band on shoulder.
Interior : dark gray (10 YR 4/1) unslipped surface.
Figure 36, Number 5: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 12.
Exterior : red (10 R 4/6) to reddish brown (5 YR 4/3) shaded slip; a corrugated horizontal band on shoulder.
Interior : black (10 YR 2/1) unslipped surface.
Figure 36, Number 6: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 18.
Exterior : reddish brown (5 YR 4/3) to black (10 YR 2/1) shaded slip expanding over interior of rim; a corrugated horizontal band on shoulder.
Interior : black (10 YR 2/1) unslipped surface.
Figure 36, Number 7: Rojdi A Sorath Harappan Coarse Grey Ware Pot. Trench 46L, Stratum 13.
Exterior: black (10 YR 2/1) slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior: black (10 YR 2/1) unslipped surface.

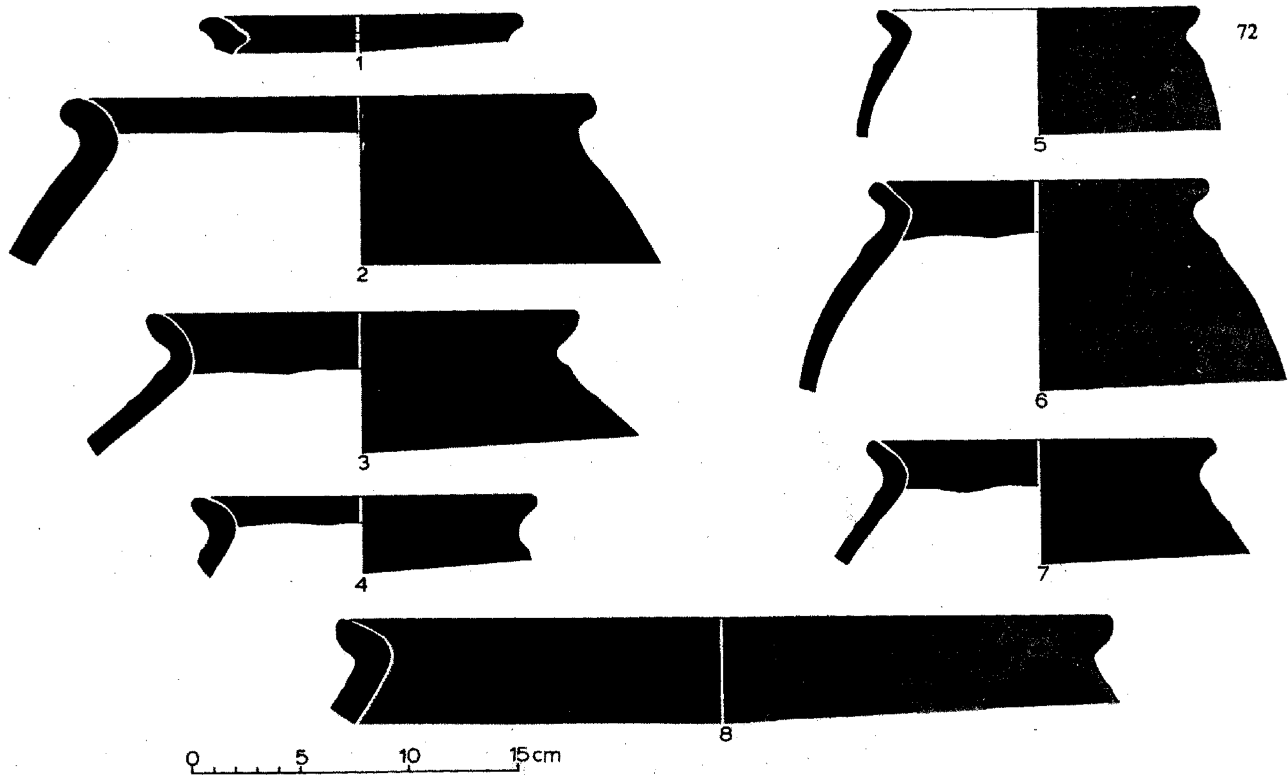


Fig. 36 Rojdi A, Coarse Ware Pots

Figure 36 Number 8: Rojdi A Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 10.
Exterior: reddish brown (5 YR 4/3) slip, with black (10 YR 2/1) patches; a corrugated horizontal band on shoulder.
Interior: reddish brown (5 YR 4/3) slip.

ROJDI A: SORATH HARAPPAN COARSE WARE JARS (Figure 37)
46L: 9 percent of the Coarse Ware rims recovered from Rojdi A in 46L.
76N: 12.5 percent of the Coarse Ware rims recovered from Rojdi A in 76N.
The Rojdi A Coarse Ware jars are also small to medium in size with ovoid to globular shapes.

Figure 37: Rojdi A Sorath Harappan Coarse Ware Jars

Figure 37, Number 1: Rojdi A Sorath Harappan Coarse Red Ware. Trench 46L, stratum 13.
Exterior : black (10 YR 2/1) to dark gray (10 YR 4/1) to dark brown (7.5 YR 3/2) shaded slip on the upper part of the vessel and light brown (7.5 YR 6/4) unslipped surface on the lower part; corrugated horizontal bands on shoulder.
Interior : black (10 YR 2/1) unslipped surface.

Figure 37, Number 2: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 46L, stratum 18.
Exterior : dark grayish brown (10 YR 4/2) slip on the upper part of the vessel and red (10 R 4/6) unslipped surface on the lower part; corrugated horizontal bands on shoulder.
Interior : black (10 YR 2/1) unslipped surface.

Figure 37, Number 3: Rojdi A Sorath Harappan Coarse Grey Ware Jar. Trench 46L, stratum 13.
Exterior : very grayish dark brown (10 YR 3/2) to black (10 YR 2/1) shaded slip expanding over interior of rim; corrugated horizontal bands on shoulders.
Interior : black (10 YR 2/1) slip.

Figure 37, Number 4: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 46L, stratum 16.
Exterior : light brownish gray (10 YR 6/2) to dark brown (7.5 YR 3/2) slip.
Interior : black (10 YR 2/1) slip.

ROJDI A: SORATH HARAPPAN COARSE WARE BASINS (Figure 38)
46L: 3 percent of the Coarse Ware rims recovered from Rojdi A in 46L.
76N: 0 percent of the Coarse Ware rims recovered from Rojdi A in 76N.
Only one basin form is found in Rojdi A Coarse Wares. It comes from 46L.

Figure 38: Rojdi A Sorath Harappan Coarse Ware Basin .

Figure 38, Number 1: Rojdi A Sorath Harappan Coarse Red Ware. Trench 46L, stratum 10.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish brown (5 YR 4/3) to very grayish dark brown (10 YR 3/2) shaded slip.

ROJDI A: SORATH HARAPPAN COARSE WARE DISHES (Figure 39)
46L: 0 percent of the Coarse Ware rims recovered from Rojdi A in 46L.
76N: 5 percent of the Coarse Ware rims recovered from Rojdi A in 76N.
Trench 76N produced one dish in Coarse Red Ware.

Figure 39: Rojdi A Sorath Harappan Coarse Ware Dish

Figure 39, Number 1: Rojdi A Sorath Harappan Coarse Red Ware Dish. Trench 76N, stratum 7.
Exterior and Interior : reddish brown (2.5 YR 4/4) slip.

1

2

3

4

0 5 10 15 cm

Fig. 37 Rojdi A, Coarse Ware Jars

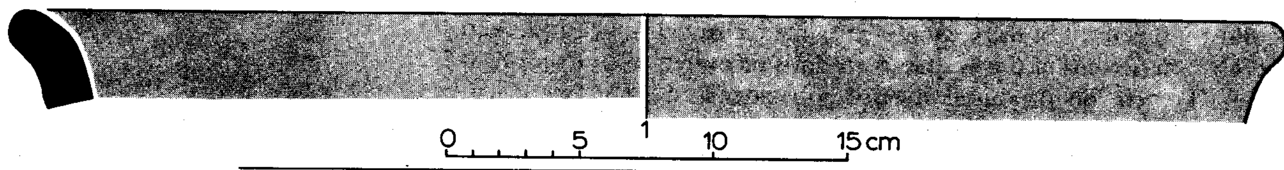


Fig. 38 Rojdi A, Coarse Ware Basins

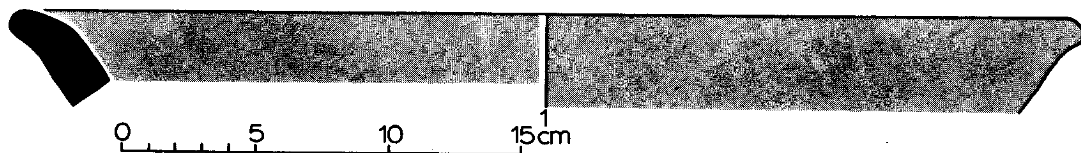


Fig. 39 Rojdi A, Coarse Ware Dish

ROJDI A: SORATH HARAPPAN COARSE WARE DECORATION AND SURFACE TREATMENT

Decoration of the Rojdi A Coarse Wares is not elaborate. The pots and jars are embellished in a simple way by burnishing the slip on the upper part of the vessel. The shoulder of these pots may have from one to three corrugated bands which seem to have been formed on the wheel by using the fingertips to form the ridges. In 46L this fluted treatment was observed on 6.5 percent of all the Coarse Ware sherds from this trench. In 76N it occurs on 3 percent of the Coarse Ware sherds from that trench. It is only found on jars and pots. The only other Coarse Ware decoration consists of a few horizontal lines incised on the shoulder of pot or jar before it was slipped.

The Pottery of Rojdi B

ROJDI B: SORATH HARAPPAN FINE WARES

46L: 60 percent of the total number of sherds recovered from Rojdi B in 46L.

76N: 71 percent of the total number of sherds recovered from Rojdi B in 76N.

Fine Wares form the largest portion of the Rojdi ceramic corpus during the second pottery phase. The fabrics of the Fine Red, Fine Buff and Fine Grey Wares remain basically the same as those of Rojdi A. The clay is well levigated, the same temper is used and the pottery is still well fired. Some slight "deterioration" can be observed in the slip treatment. While thick, smooth slips are still applied, more of the vessels have a mat finish or a blistered effect. Most important, however, is that during this phase new Fine Ware vessel forms are gradually introduced. The appearance of ring bases is interesting. Slightly more complex painted designs and other new forms of decoration also occur in the Rojdi B Fine Wares.

ROJDI B: SORATH HARAPPAN FINE WARE VESSEL FORMS

46L: 79 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi B in 46L.

76N: 80 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi B in 76N.

Almost all vessel forms of Rojdi A are produced during the second pottery phase. The narrow mouthed pots with everted rim and oblique straight sided dishes are replaced by new ones.

ROJDI B: SORATH HARAPPAN FINE WARE BOWLS (Figure 40)

46L: 67 percent of the Fine Ware rims recovered from Rojdi B in 46L.

76N: 73 percent of the Fine Ware rims recovered from Rojdi B in 76N.

In Rojdi B the same bowls are in use as in the earlier phase. Some of the convex-sided bowls of Rojdi B have straighter sides than in Rojdi A. Bowls with carination are new (Figure 68, numbers 1 and 3).

Stud-handled bowls in Fine Ware appear for the first time in Rojdi B. The percentages for these bowls are as follows: 46L; 0.3 percent of the Fine Ware rims recovered from Rojdi B in 46L. 76N; 0.4 per cent of the Fine Ware rims recovered from Rojdi B in 76N.

It can be pointed out that from the material examined in trenches 46L and 76N there is no evolution of the form of the handles on stud-handled bowls in Rojdi Fine Ware. These handles are all relatively long with a wide disk at the top. This seems to be a result of the fact that the Sorath Harappan Fine Ware stud-handle is wheel thrown. It is also confined to Rojdi B and C. Stud-handled bowls in "non-Harappan" fabrics also occur in Rojdi B and C. They remain comparatively short and squat during these phases, just as they were in Rojdi A. The short, squat shape seems to be a result of the fact that these handles are all hand-made.

S. R. Rao has proposed an evolution of stud-handles on bowls from Rangpur (Rao 1963: 23). He sees a change from short, squat stems in IIA to longer, narrower ones in IIC. This is not the case at Rojdi. Short, squat handles, associated with "non-Harappan" fabrics, are found in Rojdi A, B and C. Comparatively long stud-handles are found in Rojdi B and C on Sorath Harappan Fine Ware bowls.

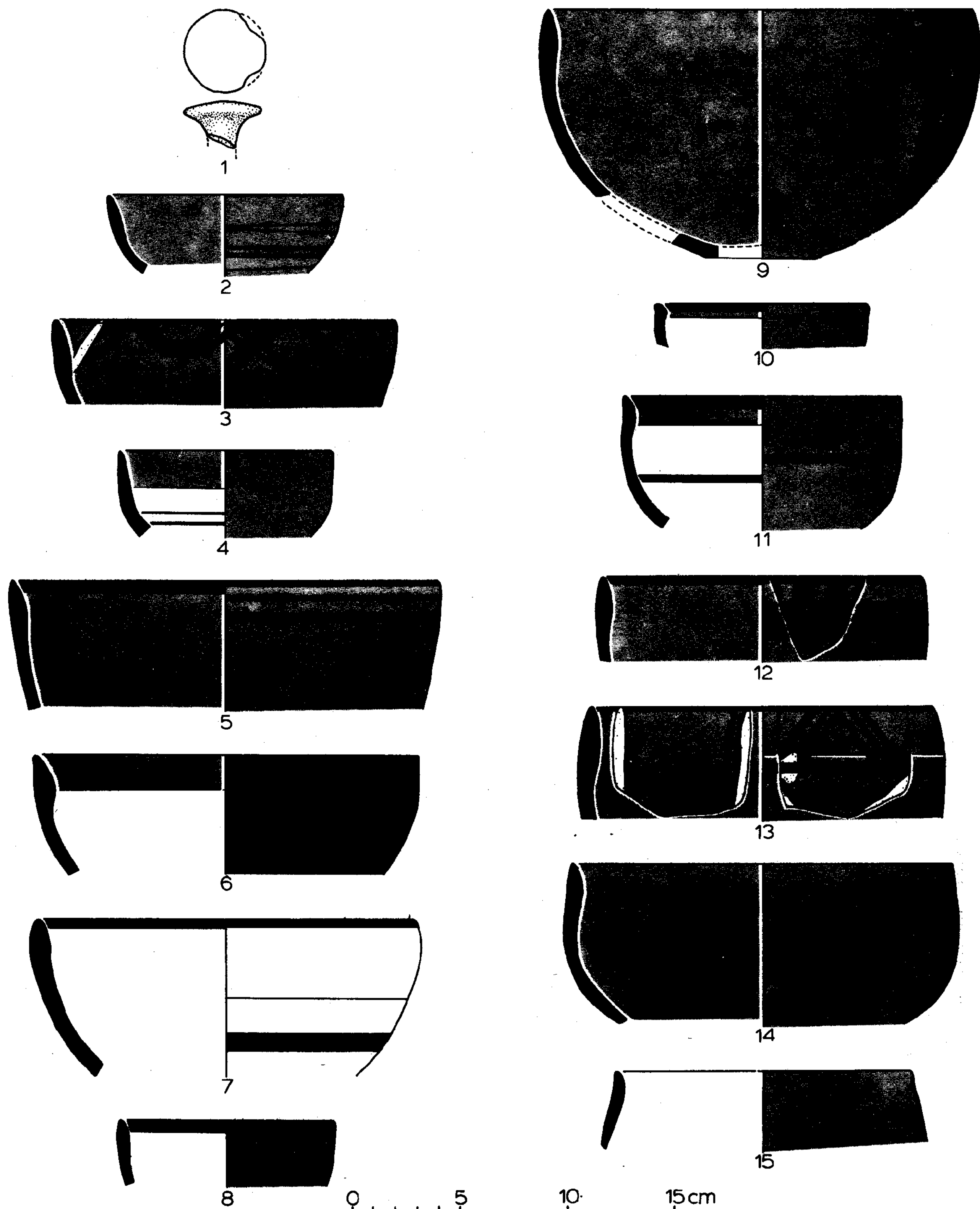


Fig. 40 Rojdi B, Fine Ware Bowls

Figure 40: Rojdi B Sorath Harappan Fine Ware Bowls

Figure 40, Number 1: Rojdi B Sorath Harappan Fine Red Ware Stud-handle of a Stud-handled Bowl. Trench 46L, stratum 5.
Exterior : reddish yellow (7.5 YR 6/6) unslipped (?) surface; weathered.

Figure 40, Number 2: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 9.
Exterior : reddish brown (5 YR 4/3) slip, with multiple weak red (10 R 5/3) painted borizontal bands.
Interior : red (10 R 5/6) slip.

Figure 40, Number 3: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : broad unslipped horizontal band and slipped surface, with dark grey (10 YR 4/1) multiple painted horizontal bands and a freeze of dark gray (10 YR 4/1) double lined diamonds as "complex painted design" on the unslipped band (the slipped surface, the unslipped, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : red slip, with-dark gray (10 YR 4/1) double lined loops as "complex painted design" hanging on the painted horizontal band of the rim.

Figure 40, Number 4: Rojdi B Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 7.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim to upper part of the surface of the bowl.
Interior : pale brown (10 YR 6/3) unslipped surface with two reddish brown (2.2 YR 6/4) painted horizontal bands (the slipped band, the unslipped surface, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").

Figure 40, Number 5: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : red (10 YR 5/6) slip, with multiple very dusky red (10 YR 3/4) painted horizontal bands.
Interior : reddish yellow (5 YR 7/6) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the rim.

Figure 40, Number 6: Rojdi B Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 9.
Exterior : very grayish dark brown (10 YR 3/2) slip.
Interior : reddish yellow (7.5 YR 6/6) slipped horizontal band near the rim, and brown (10 YR 5/3) unslipped surface ("slipped-cum-unslipped" surface treatment).

Figure 40, Number 7: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : partly light reddish brown (5 YR 6/4) slipped pink (5 YR 7/4) slipped, and 18 unslipped surface, with multiple very grayish dark brown (10 YR 3/2) painted horizontal bands (the slipped bands, unslipped surface, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "polychrome effect").
Interior : light reddish brown (5 YR 6/4) slip, with a very grayish dark brown (10 YR 3/2) painted horizontal band. Slipped bands, unslipped surface, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect".

Figure 40, Number 8: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish yellow (7.5 YR 6/6) unslipped surface, weak red (10 R 5/3) painted horizontal band on the rim.

Figure 40, Number 9: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 8.
Exterior : reddish brown (2.5 YR 6/4) slip; contiguous flat base.
Interior : light red (10 R 6/6) slip.

Figure 40, Number 10: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 6.
Exterior : reddish yellow (5 YR 7/6) slip.

Interior : reddish yellow (5 YR 7/6) slipped band near rim, and very pale brown (10 YR 7/4) unslipped surface, with a very dusky red (10 YR 3/4) painted horizontal band on the rim (the slipped band, unslipped surface, and painted band are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").

Figure 40, Number 11: Rojdi B Sorath Harappan Fine Buff Ware Bowl. Trench 46L, stratum 8.
Exterior : red (10 R 5/6) slip, with two black (10 YR 2/1) painted horizontal bands.
Interior : weak red (10 R 4/4) slipped band near rim and pale brown (10 YR 6/3) unslipped surface, with two very dusky red (10 YR 3/4) painted horizontal bands (the slipped band, unslipped surface, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").

Figure 40, Number 12: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : red (10 R 5/6) slip, with multiple black (10 YR 2/1) painted horizontal bands and dots on a row as "complex painted design".
Interior : red (10 R 5/6) slip, with a black (10 YR 2/1) painted horizontal band on the rim.

Figure 40, Number 13: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.
Exterior : reddish brown (5 YR 4/3) slipped surface and unslipped horizontal band, with a freeze of triple horizontal dark grayish brown (10 YR 4/2) zigzag lines on the unslipped surface which are bordered by two dark grayish brown (10 YR 4/2) painted horizontal bands (the slipped band, unslipped surface, and painted bands are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : weak red (10 R 4/4) slip, with a dark grayish brown (10 YR 4/2) painted horizontal band on the rim and vertical lines as "complex painted design".

Figure 40, Number 14: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 8.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : light red (10 R 6/6) slip.

Figure 40, Number 15: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 6.
Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish brown (2.5 YR 6/4) unslipped surface.

ROJDI B: SORATH HARAPPAN FINE WARE POTS/JARS/BASINS (Figures 41, 42 and 43)

Pots:	46L:	22 percent of the Fine Ware rims recovered from Rojdi B in 46L.
	76N:	18 percent of the Fine Ware rims recovered from Rojdi B in 76N.
Jars:	46L:	1 percent of the Fine Ware rims recovered from Rojdi B in 46L.
	76N:	0 percent of the Fine Ware rims recovered from Rojdi B in 76N.
Basins:	46L:	2 percent of the Fine Ware rims recovered from Rojdi B in 46L.
	76N:	1 percent of the Fine Ware rims recovered from Rojdi B in 76N.

In general, pot, jar, and basin forms of Rojdi B are more sturdy in appearance than those of Rojdi A. The rim types of medium-sized pots are expanded in number and somewhat heavier. The introduction of beaked and heavy beaded, and more undercut rims is noteworthy. Small pots keep the same form but have more often triangular everted rims at their mouth. Also, for the first time a storage pot of the close mouthed type is used. Marked innovations can be seen in the basins. For instance, medium to large sized thick sided types and the squat S-shaped type with everted rim. (Figures 41, 42 and 43).

Figure 41: Rojdi B Sorath Harappan Fine Ware Pots

Figure 41, Number 1: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : red (10 R 5/6) slip.
Interior : unslipped surface.

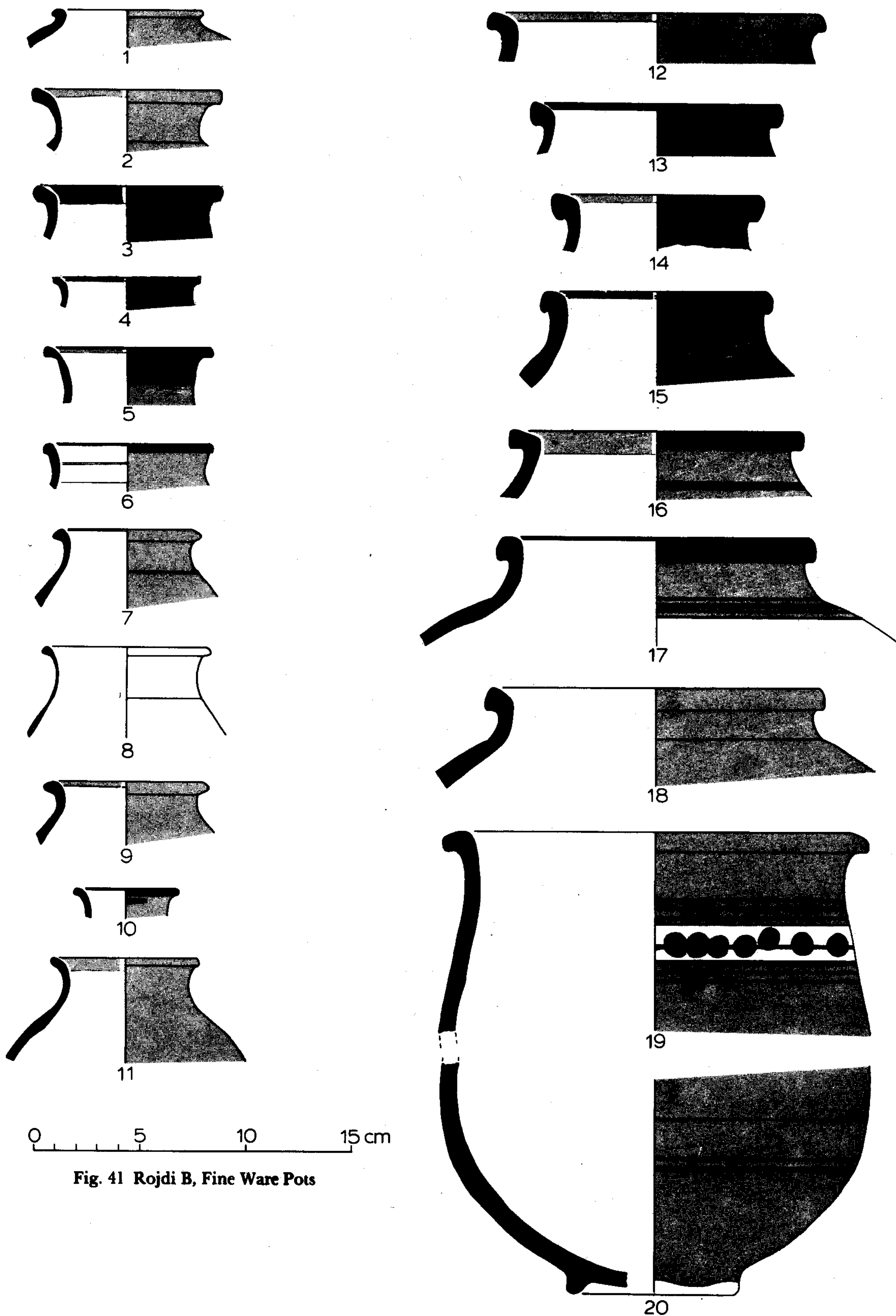


Fig. 41 Rojdi B, Fine Ware Pots

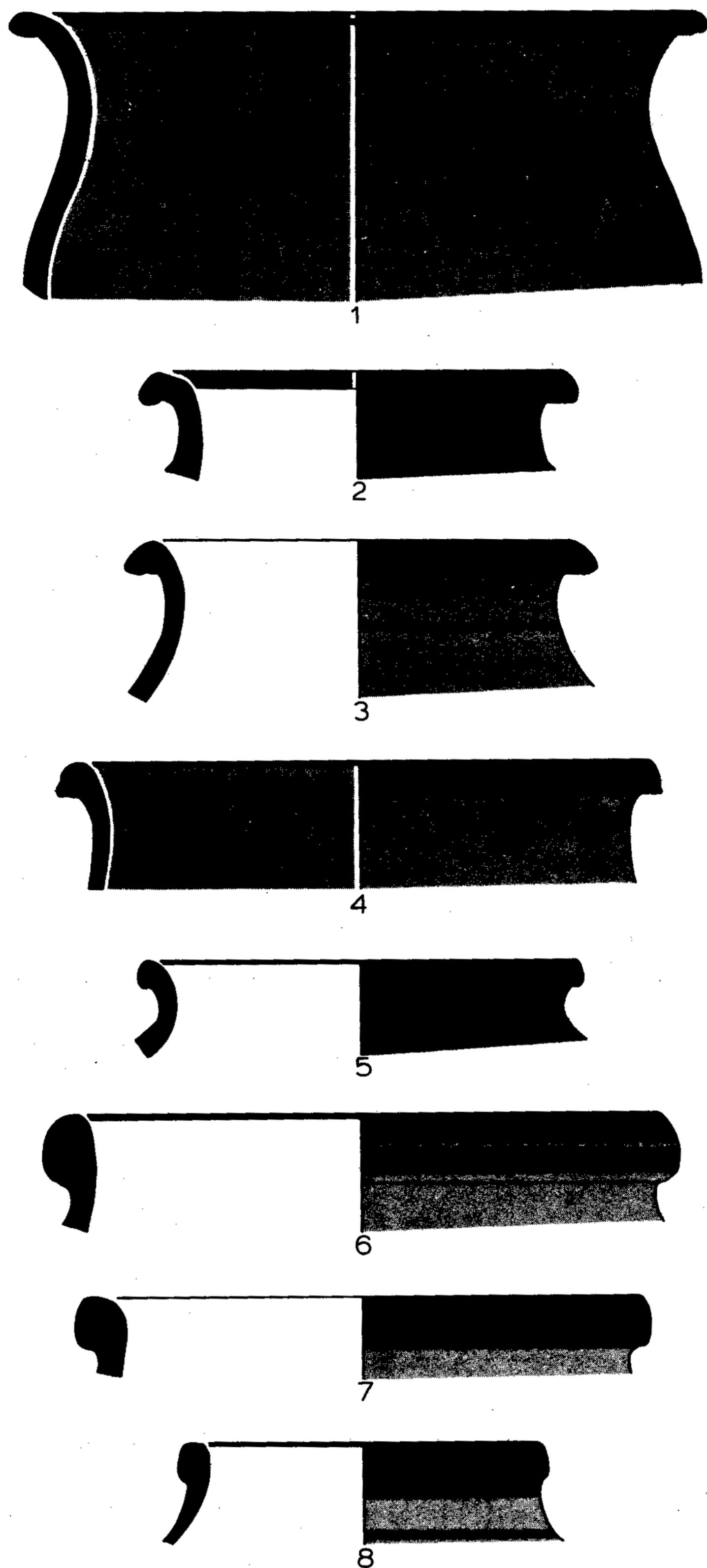


Fig. 42 Rojdi B, Fine Ware Jars

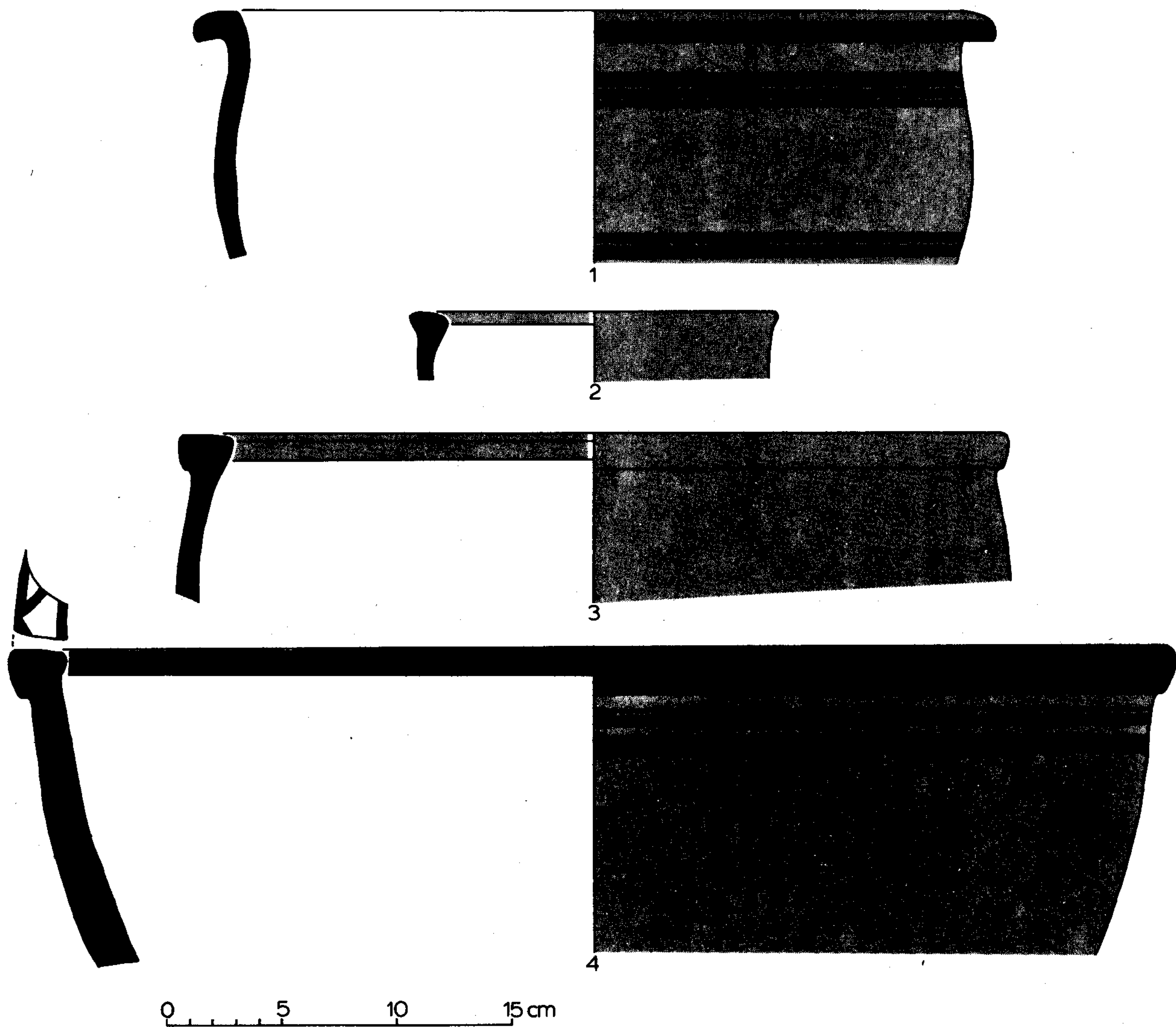


Fig. 43 Rojdi B, Fine Ware Basins

Figure 41, Number 2: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : red (10 R 5/6) slip expanding over interior of rim.
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 41, Number 3: Rojdi B Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 9.
Exterior : dark gray (10 YR 4/1) slip.
Interior : weak red (10 R 4/4) slip or rim, and light brownish gray (10 YR 6/2) unslipped surface.

Figure 41, Number 4: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : dark brown (7.5 YR 3/2) slip expanding over interior of rim.
Interior : reddish brown (5 YR 4/3) unslipped surface.

Figure 41, Number 5: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim, with dark brown (7.5 YR 3/2) painted horizontal bands on rim and neck.
Interior : light brown (7.5 YR 6/4) unslipped surface (the slipped and painted band on the rim, and the unslipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect" at the vessel mouth).

Figure 41, Number 6: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 5.
Exterior : very pale brown (10 YR 7/4) slip, with a brown (7.5 YR 5/3) painted horizontal band on the rim.
Interior : yellow (10 YR 7/6) unslipped surface; horizontal striations at the inside of the neck.

Figure 41, Number 7: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 5.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim.
Interior : light brown (7.5 YR 6/4) unslipped surface;

Figure 41, Number 8: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 5.
Exterior and Interior : reddish yellow (5 YR 7/6) unslipped surfaces (?); weathered.

Figure 41, Number 9: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 8.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 41, Number 10: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 5.
Exterior : reddish yellow (5 YR 7/6) slip, with grayish brown (10 YR 5/2) painted horizontal bands on and near the rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 41, Number 11: Rojdi (A ?)-B Sorath Harappan Fine Red Ware Pot. Trench 46L, strata 8 and 12.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim.
Interior : red (10 R 4/6) unslipped surface.

Figure 41, Number 12: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 6.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim.
Interior : unslipped surface.

Figure 41, Number 13: Rojdi B Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 9.
Exterior : very grayish dark brown (10 YR 3/2) slip, with a black (10 YR 2/1) painted horizontal band on rim.
Interior : very pale brown (10 YR 7/3) unslipped surface.

Figure 41, Number 14: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : very dusky red (10 YR 3/4) painted broad horizontal band covering rim and shoulder.
Interior : light brown (7.5 YR 6/4) unslipped surface.

Figure 41, Number 15: Rojdi B Sorath Harappan Fine Buff Ware Pot. Trench 46L, ; stratum 8.
Exterior : brown (7.5 YR 5/3) slip expanding over interior of rim, with multiple black (10 YR 2/1) painted horizontal bands on the shoulder and grayish brown (10 YR 5/2) painted horizontal bands on the rim.
Interior : pale brown (10 YR 6/3) unslipped surface (the slipped band, and painted bands on the rim; and the unslipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect" at the vessel mouth).

Figure 41, Number 16: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 8.
Exterior : red (10 R 5/6) slip expanding over interior of rim, with a very dusky red (10 YR 3/4) painted horizontal band on shoulder and rim, and a weak red (10 R 4/4) painted horizontal band on top of the rim.
Interior : pink (5 YR 7/4) unslipped surface ("slipped-cum-unslipped" surface treatment with "bichrome effect") at interior of rim.

Figure 41, Number 17: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : yellow (10 YR 7/6) unslipped band and reddish brown (2.5 YR 6/4) slipped surface, with multiple weak red (10 R 4/4) painted horizontal bands on slipped shoulder and rim (the slipped band, painted bands, and the unslipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect" at the vessel mouth).
Interior : yellow (10 YR 7/6) unslipped surface.

Figure 41, Number 18: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 9.
Exterior : weak red (10 R 5/3) slip.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 41, Number 19: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 5.
Exterior : reddish brown (2.5 YR 6/4) slip, with multiple light red (10 R 6/6) painted horizontal bands on shoulder, combined with a 'dots on a horizontal band'- "complex painted design" which is applied on a reddish yellow (5 YR 7/6) unslipped horizontal band (the unslipped band, painted bands and design, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 41, Number 20: Rojdi B Sorath Harappan Fine Red Ware base of a pot. Trench 46L, stratum 5.
Exterior : reddish brown (2.5 YR 6/4) slip, with light red (10 R 6/6) painted horizontal bands on bottom of body, and reddish yellow (5 YR 7/6) unslipped base (the unslipped base, painted bands and design, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 42: Rojdi B Sorath Harappan Fine Ware Jars

Figure 42, Number 1: Rojdi B Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 8.
Exterior : weak red (10 R 4/4) slip, with multiple very dusky red (10 YR 3/4) painted horizontal bands on shoulder and rim.
Interior : weak red (10 R 4/4) slip.

Figure 42, Number 2: Rojdi B Sorath Harappan Fine Buff Ware Jar. Trench 46L, stratum 9.
Exterior : dark grayish brown (10 YR 4/2) slip expanding over interior of rim.
Interior : dark grayish brown (10 YR 4/2) unslipped surface.

Figure 42, Number 3: Rojdi B Sorath Harappan Fine Buff Ware Jar. Trench 46L, stratum 5.

Exterior : light brown (7.5 YR 6/4) slip, with a black (10 YR 2/1) painted horizontal band on the neck and rim.
Interior : very pale brown (10 YR 7/3) unslipped surface.

Figure 42, Number 4: Rojdi B Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 5.
Exterior : weak red (10 R 5/3) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the rim.
Interior : red (10 R 5/6) slip.

Figure 42, Number 5: Rojdi B Sorath Harappan Fine Buff Ware Jar. Trench 46L, stratum 9.
Exterior : very grayish dark brown (10 YR 3/2) slip, with multiple black (10 YR 2/1) painted horizontal bands on shoulder and rim.
Interior : pale brown (10 YR 6/3) unslipped surface.

Figure 42, Number 6: Rojdi B Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 5.
Exterior : reddish brown (5 YR 4/3) slip with two dark grayish brown (10 YR 4/2) painted horizontal bands on the rim.
Interior : pink (7.5 YR 7/4) unslipped surface.

Figure 42, Number 7: Rojdi B Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 8.
Exterior : reddish brown (2.5 YR 5/4) slip, with very dusky red (10 YR 3/4) painted horizontal band on the rim.
Interior : unslipped pink (5 YR 7/6) surface.

Figure 42, Number 8: Rojdi B Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 8.
Exterior : red (2.5 YR 5/6) slip expanding over interior of rim, with dark grayish brown (10 YR 4/2) painted horizontal bands on shoulder and rim.
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 43: Rojdi B Sorath Harappan Fine Ware Basins

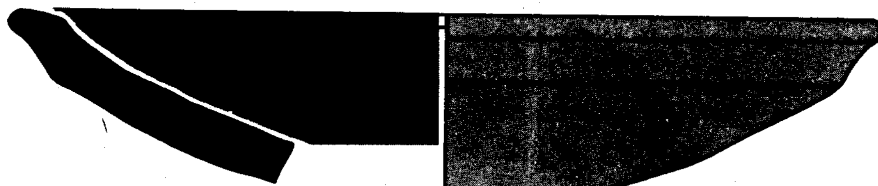
Figure 43, Number 1: Rojdi B Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 8.
Exterior : light red (10 R 6/6) slip, with multiple black (10 YR 2/1) painted horizontal bands on belly, shoulder and rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

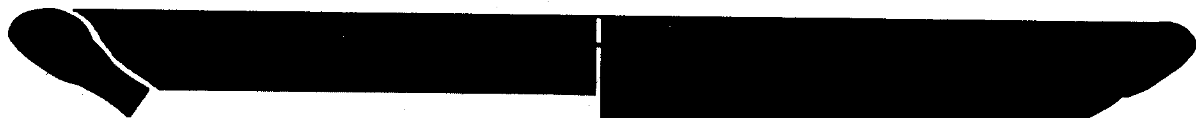
Figure 43, Number 2: Rojdi B Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 9.
Exterior : light red (10 R 6/6) slip expanding over interior of rim.
Interior : very pale brown (10 YR 7/4) unslipped surface (slipped band near the rim and unslipped surface are the components of the "slipped-cum-unslipped "surface treatment).

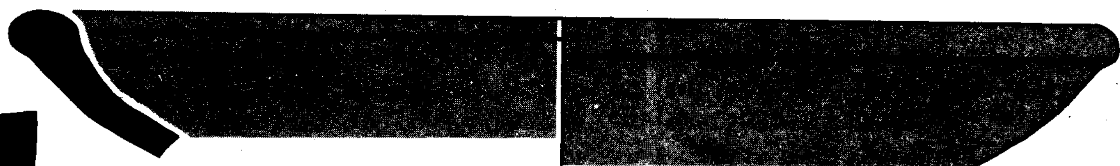
Figure 43, Number 3: Rojdi B Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 8.
Exterior : red (10 R 5/6) slip expanding over interior of rim.
Interior : pink (7.5 YR 7/4) unslipped surface (slipped band near the rim and unslipped surface are the components of the "slipped-cum-unslipped surface" treatment).

Figure 43, Number 4: Rojdi B Sorath Harappan Fine Red Basin. Trench 46L, stratum 5.
Exterior : light red (10 R 6/6) slip, with multiple very dusky red (10 YR 3/4) painted horizontal bands on shoulder and rim and very dusky red (10 YR 3/4) 'hanging simple loops' as "complex painted design" on top of the rim.
Interior : pink (7.5 YR 7/4) unslipped surface.

ROJDI B: SORATH HARAPPAN FINE WARE DISH/DISH-ON-STAND (Figures 44 and 45)
Dishes: 46L: 3 percent of the Fine Ware rims recovered from Rojdi B in 46L.
76N: 4 percent of the Fine Ware rims recovered from Rojdi B in 76N.
Dishes-on-stand: 46L: 3 percent of the Fine Ware rims recovered from Rojdi B in 46L.
76N: 0.5 percent of the Fine Ware rims recovered from Rojdi B in 76N.







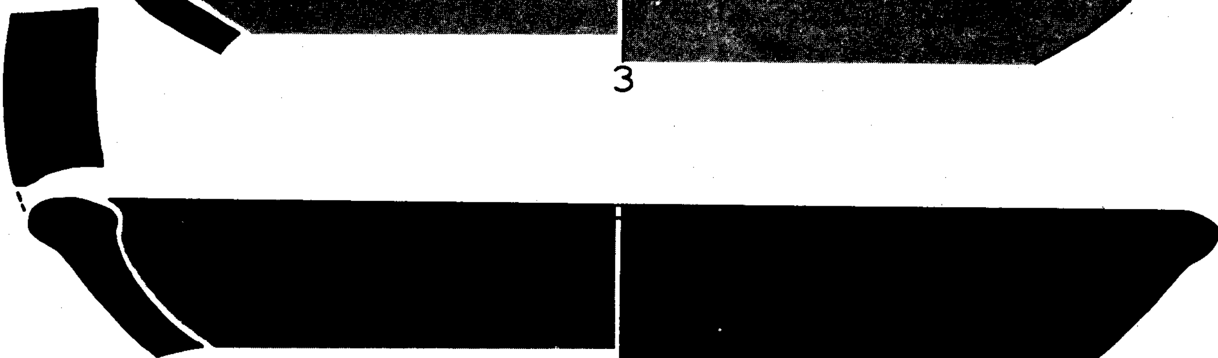










Fig. 44 Rojdi B, Fine Ware Dishes

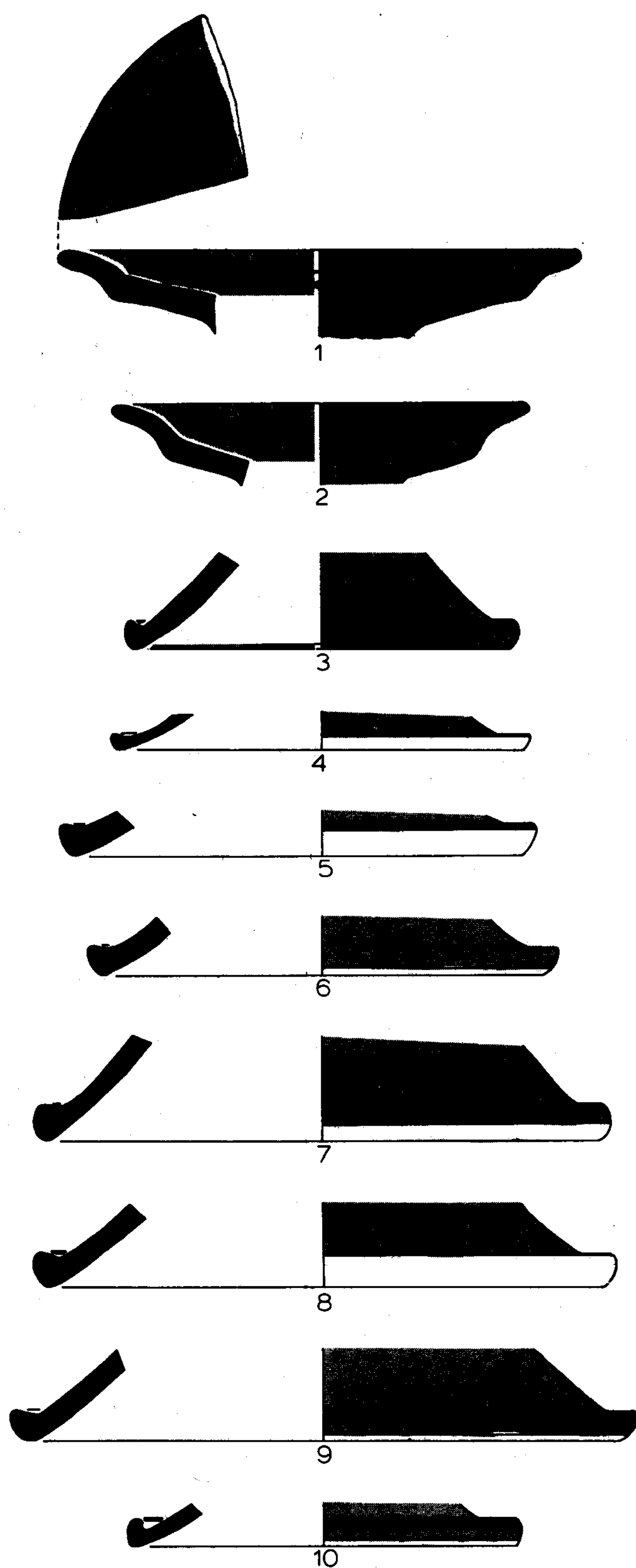


Fig. 45 Rojdi B, Fine Ware Dishes-on-Stand

In addition to types continuing unchanged from Rojdi A, the dish with carinated shoulder and simple everted or projecting rim is added to the Rojdi B Fine Ware assemblage.

Figure 44: Rojdi B Sorath Harappan Fine Ware Dishes

Figure 44, Number 1: Rojdi B Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 5.
Exterior : very dusky red (10 YR 3/4) slip.
Interior : dark gray (10 YR 4/1) slip.

Figure 44, Number 2: Rojdi B Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 9.
Exterior and Interior : dark grayish brown (10 YR 4/2) slip.

Figure 44, Number 3: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 9.
Exterior and Interior : reddish brown (2.5 YR 6/4) slip.

Figure 44, Number 4: Rojdi B Sorath Harappan Fine Buff Ware Dish. Trench 46L, strata 5 and 6.
Exterior : pinkish gray (5 YR 7/2) slip; light gray to gray (5 YR 6/1) painted horizontal band on exterior of rim.
Interior : pinkish gray (5 YR 7/2) slip, light gray to gray (5 YR 6/1) 'intersecting hanging loops' as "complex painted design" on top of the rim.

Figure 44, Number 5: Rojdi B Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 6.
Exterior and Interior : reddish brown (2.5 YR 6/4) slip.

Figure 44, Number 6: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 8.
Exterior : weak red (10 R 5/3) slip, with a dark brown (7.5 YR 3/2) painted horizontal band on the rim.
Interior : weak red (10 R 5/3) slip.

Figure 44, Number 7: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 5.
Exterior and Interior : red (2.5 YR 5/6).

Figure 45: Rojdi B Sorath Harappan Fine Ware Dishes-on-Stand

Figure 45, Number 1: Rojdi B Sorath Harappan Fine Red Ware Dish-on-Stand. Trench 46L, strata 6 and 8.
Exterior : yellowish red (5 YR 5/6) slip, with multiple weak red (10 R 4/4) painted horizontal bands.
Interior : reddish brown (2.5 YR 6/4) slip, with multiple weak red (10 R 4/4) painted horizontal bands and vertical lines as "complex painted design" on top of the rim.

Figure 45, Number 2: Rojdi B Sorath Harappan Fine Red Ware Dish-on-Stand. Trench 46L, stratum 8.
Exterior : light brown (7.5 YR 6/4) slip, with grayish brown (10 YR 5/2) painted horizontal bands.
Interior : light brown (7.5 YR 6/4) slip.

Figure 45, Number 3: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 5.
Exterior : grayish brown (10 YR 5/2) slip expanding over bottom of stand rim, with a weak red (10 R 5/3) painted horizontal band on top of the rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 45, Number 4: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 6.
Exterior : a black (10 YR 2/1) painted horizontal band on top of the stand rim separates the red (10 R 5/6) slip on body of the stand from the reddish yellow (5 YR 7/6) unslipped band at the bottom of the rim (the unslipped band, painted band, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 45, Number 5: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 8.
Exterior : a black (10 YR 2/1) painted horizontal band on top of the stand rim separates the red (10 R 5/6) slip on the body of the stand from the reddish yellow (5 YR 7/6) unslipped band at the bottom of the rim (the unslipped band, painted band, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 45, Number 6: Rojdi B Sorath Harappan Fine Buff Ware Stand of a Dish-on-Stand. Trench 46L, stratum 9.
Exterior : very dusky red (10 YR 3/4) slip on the body of the stand and unslipped buff rim bottom.
Interior : buff unslipped surface.

Figure 45, Number 7: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 5.
Exterior : a dark gray (10 YR 4/1) painted horizontal band on red slip on top of the stand rim, yellowish red (5 YR 5/6) unslipped band at the bottom of the rim (the unslipped band, painted band, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : yellowish red (5 YR 5/6) unslipped surface.

Figure 45, Number 8: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 5.
Exterior : a black (10 YR 2/1) painted horizontal band on top of the stand rim separates the red (10 R 5/6) slip on the body of the stand from the yellowish red (5 YR 5/6) unslipped band at the bottom of the rim; multiple black (10 YR 2/1) painted horizontal bands (the unslipped band, painted bands, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : yellowish red (5 YR 5/6) unslipped surface.

Figure 45, Number 9: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 5.
Exterior : a dark gray (10 YR 4/1) painted horizontal band on red (10 R 5/6) slip on top of the stand rim; light brown (7.5 YR 6/4) unslipped band at the bottom of the rim (the unslipped band, painted band, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : light brown (7.5 YR 6/4) unslipped surface.

Figure 45, Number 10: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 5.
Exterior : a grayish brown (10 YR 5/2) painted horizontal band on light brown (7.5 YR 6/4) slip on top of the stand rim; reddish yellow (5 YR 7/6) unslipped band at the bottom of the rim (the unslipped band, painted band, and the slipped surface are the components of the "slipped-cum-unslipped" surface treatement with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Rojdi B: Sorath Harappan Fine Ware Goblet/Bottle

There is no certain record of either the goblet or bottle in Rojdi B of trenches 46L or 76N.

Rojdi B: Sorath Harappan Fine Wares Decoration and Slip Treatment

The Rojdi B decoration of Fine Ware vessels is slightly different from that of Rojdi A. For example, burnishing as a mode of decoration seems to be introduced. Such patterns occur on only a small number of sherds in Rojdi B, but it becomes quite fashionable during the last pottery phase.

Cord impressions on the body of large storage pots and jars are also observed for the first time in Rojdi B. These seem to be related to the introduction of these vessel forms. This pattern is probably functional, being the imprint of cords tight around the belly to keep vessels from collapsing during the making or drying process.

Rojdi B Sorath Harappan Fine Ware bowls are different in their interior decoration and surface treatment from those of Rojdi A. Three surface treatments were examined for Rojdi A, B and C, Fine Ware bowls: unslipped, slipped bands and finally, the "bichrome effect." In Rojdi A the total number of sherds with one of these three categories of decoration is 49 percent of the total Fine Ware bowls in 46L and 33 percent in 76N. In Rojdi B this drops in 46L to 27 percent and in 76N to 18 percent. This drop continues in Rojdi C and is discussed below.

There are no "complex painted designs" in the Fine Ware bowls from 46L or 76N of Rojdi A. Such designs are introduced on the Fine Ware bowls in Rojdi B. Tentatively, it appears that two sources for these designs were tapped: painted patterns on other Fine Ware vessel forms, and painted designs on "non-Harappan" wares, such as Prabhas Ware or Smooth Red Ware. New motifs include the rare "source motif": wavy lines flanked at both sides by a hanging curve. Rojdi B Fine Ware painted designs are seen in Figure 40.

There are no basic differences between Rojdi A and B in terms of the graffiti, except that now they mostly all appear on the exterior of the vessels.

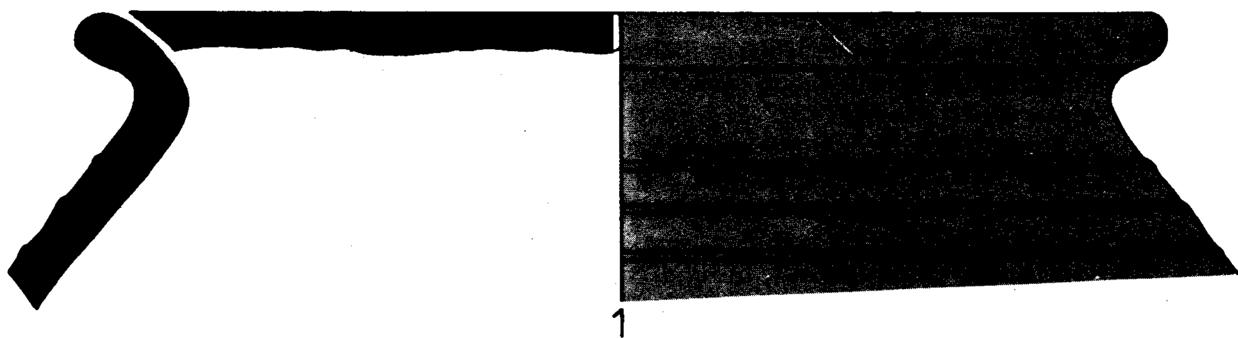
ROJDI B: SORATH HARAPPAN COARSE WARES
46L: 36 percent of the total number of sherds recovered from Rojdi B in 46L.
76N: 26 percent of the total number of sherds recovered from Rojdi B in 76N.

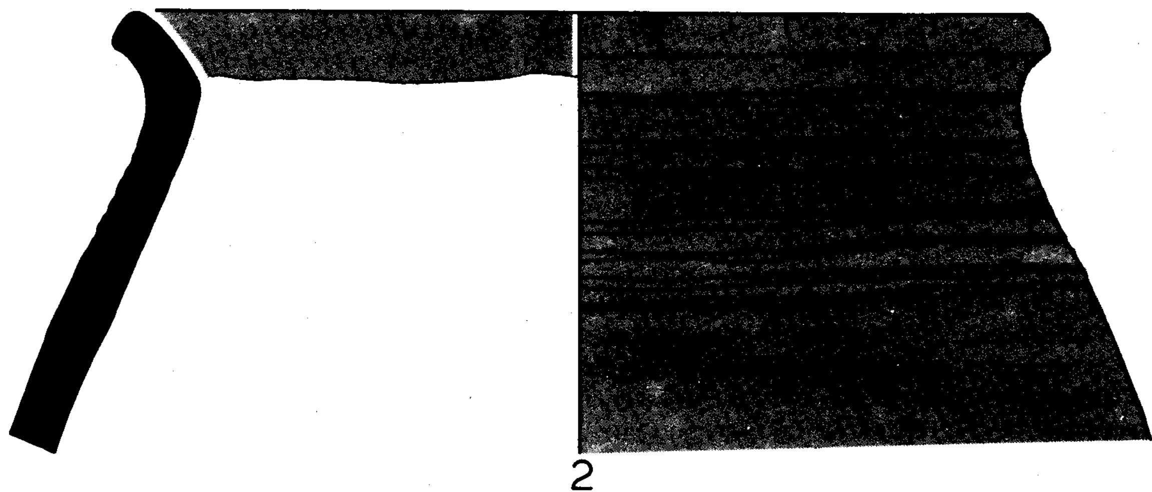
The hardness and durability of the Rojdi B Coarse Wares is somewhat inferior to the Coarse Wares of Rojdi A. The same clay mixtures are used for the fabrics and there is no discernible difference in surface treatment. There is a greater variety in vessel shapes and sizes in Rojdi B as judged against Rojdi A, at least in the two trenches under consideration. Also, there seems to be a growth in the overall size of the pots and jars. Dishes are now clearly part of the Coarse Ware production. The tall basin is also introduced. The increase in vessel variability is in contrast with a decline in the number of Coarse Ware sherds recovered. There is also a shift in the balance among Coarse Ware sherds. Coarse Black and Red Ware still forms the majority: 46L and 76N both have 64 per cent of the Coarse Wares in this category. There is also an increase in the amount of Coarse Red Ware (Tables 25 and 26). Coarse Grey Ware remains in the minority.

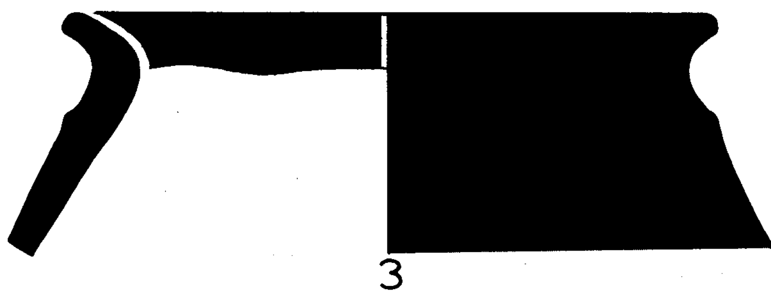
ROJDI B: SORATH HARAPPAN COARSE WARE VESSEL FORMS
46L: 21 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi B in 46L.
76N: 20 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi B in 76N.

ROJDI B: SORATH HARAPPAN COARSE WARE POTS AND JARS (Figures 46 and 47)
Pots: 46L: 44 percent of the Coarse Ware rims recovered from Rojdi B in 46L.
76N: 61 percent of the Coarse Ware rims recovered form Rojdi B in 76N.
Jars: 46L: 20 percent of the Coarse Ware rims recovered from Rojdi B in 46L.
76N: 3 percent of the Coarse Ware rims recovered from Rojdi B in 76N.

Just as in Rojdi A, Rojdi B has small to medium sized bulbous to ovoid pots and jars. In addition a new category of Coarse Ware forms emerges: large, storage jars or pots with straight thick sides.







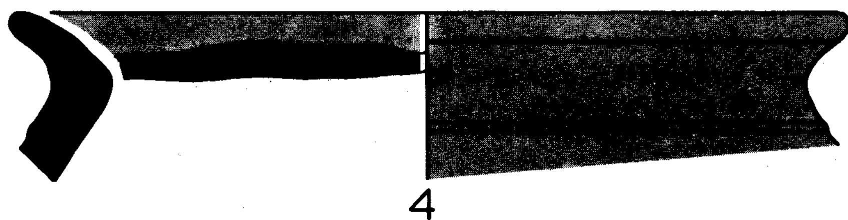




Fig. 46 Rojdi B, Coarse Ware Pots

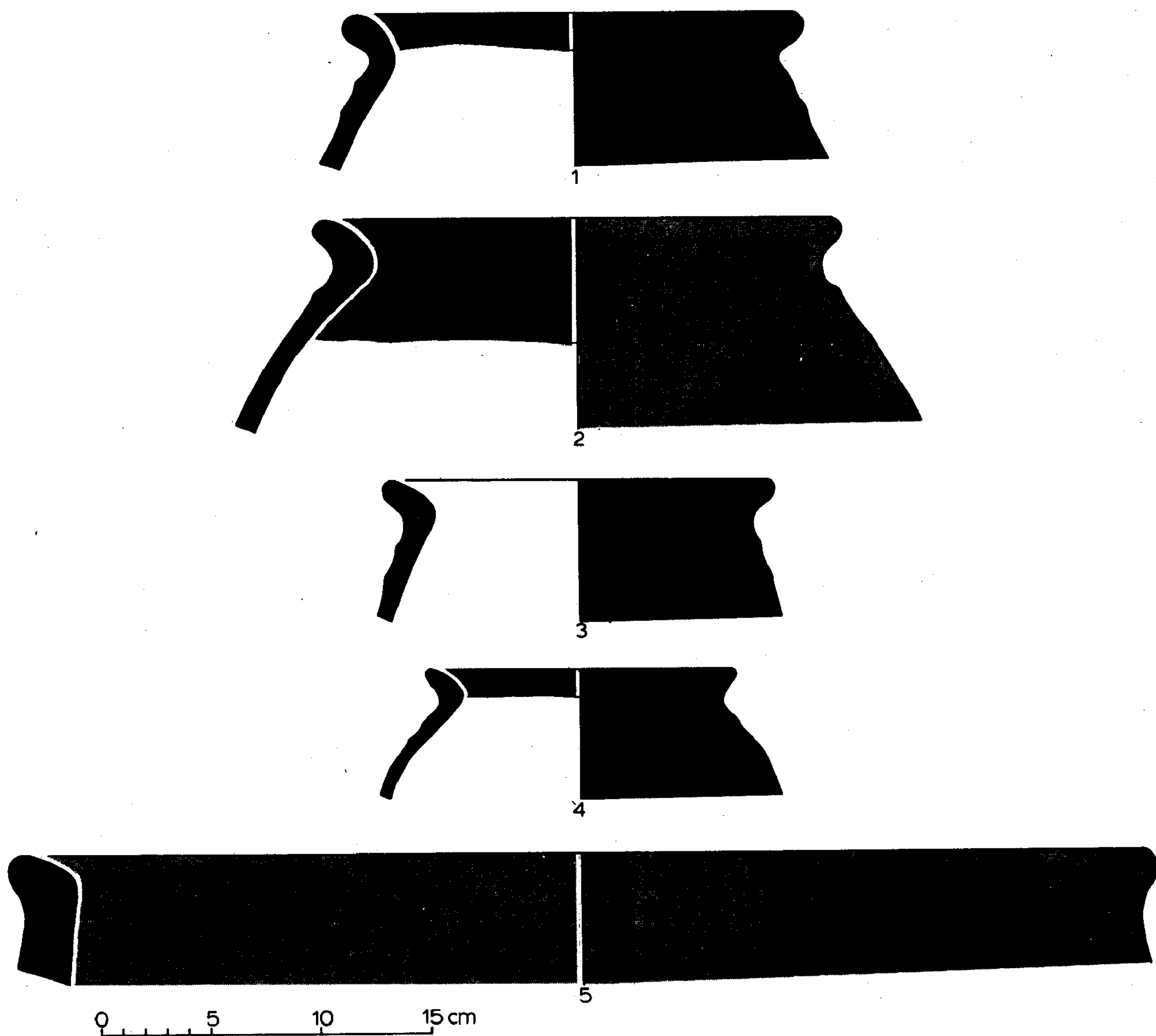


Fig. 47 Rojdi B, Coarse Ware Jars

Figure 46: Rojdi B Sorath Harappan Coarse Ware Pots

Figure 46, Number 1: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 5.
Exterior : black (10 YR 2/1) shaded slip expanding over interior of rim and reddish brown (5 YR 4/3) shaded slip on body; corrugated horizontal bands on shoulder.
Interior : black (10 YR 2/1) unslipped surface.

Figure 46, Number 2: Rojdi B Sorath Harappan Coarse Red Ware Pot. Trench 46L, strata 5 and 6.
Exterior : reddish brown (5 YR 4/3) to red (10 R 5/6) to black (10 YR 2/1) shaded slip on upper part of the body expanding over rim; unslipped lower part; seven incised horizontal lines on the of neck and shoulder. .
Interior : reddish brown (5 YR 4/3) unslipped surface.

Figure 46, Number 3: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 9.
Exterior : dark brown (7.5 YR 3/2) to black (10 YR 2/1) shaded slip expanding over interior of rim; corrugated horizontal band on shoulder.
Interior : black (10 YR 2/1) unslipped surface.

Figure 46, Number 4: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 46L, stratum 5.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim turning unto black (10 YR 2/1) on the interior of the rim; corrugated horizontal band on shoulder.
Interior : dark gray (10 YR 4/1) slip.

Figure 47: Rojdi B Sorath Harappan Coarse Ware Jars

Figure 47, Number 1: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 46L, stratum 9.
Exterior : dark brown (7.5 YR 3/2) to reddish brown (5 YR 4/3) shaded slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior : dark gray (10 YR 4/1) unslipped surface.

Figure 47, Number 2: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 46L, stratum 9.
Exterior : reddish brown (5 YR 4/3) to very dusky red (10 YR 3/4) shaded slip expanding over interior of rim turning into black (10 YR 2/1); corrugated horizontal bands on shoulder.
Interior : black (10 YR 2/1) slip.

Figure 47, Number 3: Rojdi B Sorath Harappan Coarse Grey Ware Jar. Trench 46L, stratum 9.
Exterior : black (10 YR 2/1) slip; corrugated horizontal bands on shoulder.
Interior : very grayish dark brown (10 YR 3/2) unslipped surface.

Figure 47, Number 4: Rojdi B Sorath Harappan Coarse Grey Ware Jar. Trench 46L, stratum 5.
Exterior : black (10 YR 2/1) to dark grayish brown (10 YR 4/2) shaded slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior : dark gray (10 YR 4/1) unslipped surface.

Figure 47, Number 5: Rojdi B Sorath Harappan Coarse Red Ware Jar. Trench 46L, stratum 8.
Exterior and Interior : reddish brown (2.5 YR 6/4) slip.

ROJDI B: SORATH HARAPPAN COARSE WARE BASINS (Figure 48)
46L: 2 percent of the Coarse Ware rims recovered from Rojdi B in 46L.
76N: 2 percent of the Coarse Ware rims recovered from Rojdi B in 76N.

The fabrication of tall basins with round, everted rims and small thin sided basins are new.

Figure 48: Rojdi B Sorath Harappan Coarse Ware Basins

Figure 48, Number 1: Rojdi B Sorath Harappan Coarse Red Ware Basin. Trench 46L, stratum 8.
Exterior and Interior : red (10 R 5/6) slip.

Figure 48, Number 2: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Basin. Trench 46L, stratum 8.
Exterior : reddish brown (5 YR 4/3) to black (10 YR 2/1) shaded slip.
Interior : black (10 YR 2/1) slip.

ROJDI B: SORATH HARAPPAN COARSE WARE BOWLS (Figure 49)

46L: 1 percent of the Coarse Ware rims recovered from Rojdi B in 46L.
76N: 0 percent of the Coarse Ware rims recovered from Rojdi B in 76N.

One sherd of a Coarse Ware bowl, similar to a form found in Rojdi A, was recovered from trench 46L. It is possible that the Coarse Ware convex sided bowl, which was never widely used, disappears at the end of Rojdi B.

Figure 49: Rojdi B Sorath Harappan Coarse Ware Bowl

Figure 49, Number 1: Rojdi B Sorath Harappan Coarse Grey Ware Bowl. Trench 46L, stratum 9.
Exterior and Interior : black (10 YR 2/1) slip.

ROJDI B: SORATH HARAPPAN COARSE WARE DISHES(Figure 50)
46L: 8 percent of the Coarse Ware rims recovered from Rojdi B in 46L.
76N: 3 percent of the Coarse Ware rims recovered from Rojdi B in 76N.

There are new dish shapes in Rojdi B Coarse Ware. For example, the Coarse Ware dish with thin side and pronounced carination seems to be characteristic of this phase, as seen in Figure 50, Number 1.

Figure 50: Rojdi B Sorath Harappan Coarse Ware Dish

Figure 50, Number 1: Rojdi B Sorath Harappan Coarse Red Ware Dish. Trench 46L, stratum 8.
Exterior : reddish brown (5 YR 4/3) shaded slip on body and base turning into black (10 YR 2/1) on the upper part of the dish.
Interior : black (10 YR 2/1) slip; three horizontal incised lines and regular thumb impressions.

ROJDI B: SORATH HARAPPAN COARSE WARE DECORATION AND SURFACE TREATMENT

In Rojdi B the surface burnishing of Coarse Ware vessels is essentially the same as that in Rojdi A. But, there are a few minor changes. For instance, the "corrugations" are both accentuated and faint, yielding in some instances the impression of thin horizontal applique clay bands on the shoulder. A pronounced, raised horizontal ridge at the point of maximum diameter is encountered for the first time. Some rare incised designs, such as short vertical and oblique lines on the pot/jar shoulder are new as well; although there is continuity with Rojdi in that the incisions were made before the slip was applied. The combination of thumb impressions and burnished lines on the interior of dishes are other innovations.

The Pottery of Rojdi C

ROJDI C: SORATH HARAPPAN FINE WARES: FINE RED, FINE BUFF AND FINE GREY.

46L: 79 percent of the total number of sherds recovered from Rojdi C in 46L.
76N: 85 percent of the total number of sherds recovered from Rojdi C in 76N.

With the final phase of the Sorath Harappan occupation at Rojdi there is a transition in the Fine Ware pottery production. While it is obvious that the pottery of Rojdi C draws on the Sorath

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Fig. 48 Rojdi B, Coarse Ware Basins

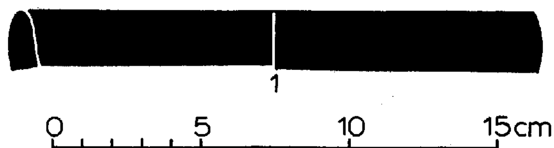


Fig. 49 Rojdi B, Coarse Ware Bowls

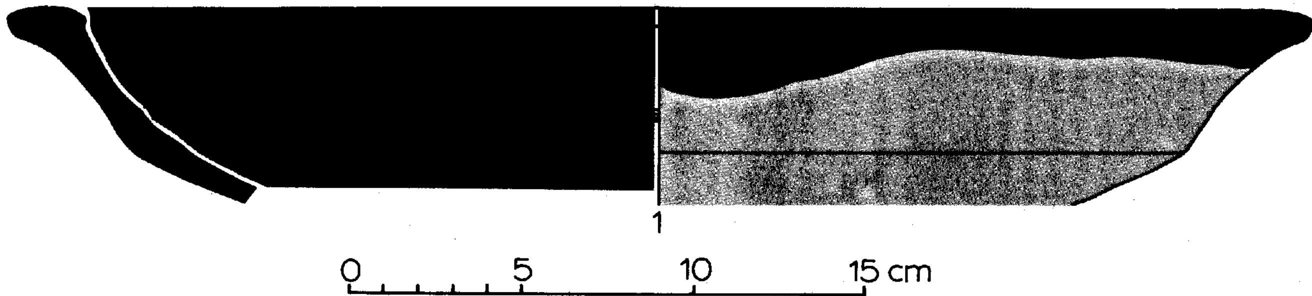


Fig. 50 Rojdi B, Coarse Ware Dishes

Harappan ceramic tradition, a number of changes suggest a phase of ceramic change, one which precedes the Lustrous Red Ware Phase of Rangpur III and other sites.

The fabrics of the three colors of Rojdi Fine Ware are all coarser than before. The fabric core is now pitted and the firing is inferior to Rojdi A and B. This leads to fabrics which are dusky red to red, in case of the Fine Red, dark brown to pale olive in case of the Fine Buff, and dark gray in case of the Fine Grey Ware. The slips are often heavily pitted, which results in a higher porosity of the vessels.

The most striking feature of the Rojdi C Fine Ware assemblage is found in the many new vessel forms which are merged with forms found in earlier phases at the site. Fine Ware production was at its highest in Rojdi C, if compared to the Coarse Wares. At the beginning of this phase 79 percent of the total pottery production in trench 46L is Fine Ware, based on sherd count, not rims. In trench 76N the comparable figure is 85 percent. These percentages reach as high as 90 percent (46L) and 92 percent (76N) in the surface layers. Red Ware surpasses all other Wares, accounting for more than 83 percent in 46L and 86 percent in 76N of all the Fine Wares. Fine Grey Ware is produced in negligible amounts.

ROJDI C: SORATH HARAPPAN FINE WARE VESSEL FORMS

46L: 85 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi C in 46L.

76N: 90 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi C in 76N.

The most important change in vessel form is an increase in the range of vessel forms including large, open mouthed storage jars; large close mouthed storage pots; medium sized pots/jars with or without an S-shaped shoulder and almost straight sides; and the "Saurashtra lamp".

ROJDI C: SORATH HARAPPAN FINE WARE BOWLS/STUD-HANDLED BOWLS (Figure 51)

Bowls: 46L: 62 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 63 percent of the Fine Ware rims recovered from Rojdi C in 76N.
Stud-handled Bowles: 46L: 0.5 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 0.5 percent of the Fine Ware rims recovered from Rojdi C in 76N.

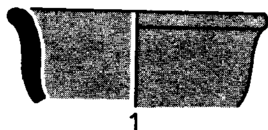
In Rojdi C, Fine Ware bowls account for 62 percent of the Fine Ware rims in 46L and 63 percent of the Fine Ware rims in 76N. This is the lowest figure for the three phases. But, because the overall percentage of Fine Ware is at its highest during Rojdi C Fine Ware bowls are actually about half of the total rims from the Rojdi C pottery corpus. For example, in 46L Fine Ware bowls are 49 percent of the rims from the combined Fine Ware/Coarse Ware production. In trench 76N this figure is 54 percent. These figures can be compared to 40.5 percent in 46L and 52 percent in 76N during Rojdi B.

It is evident at Rojdi that the bowl is the most frequent vessel form. The convex sided form is the majority form in Rojdi C, just as they were in Rojdi A and B. But the straight sided and the curved, S-shaped profiles on bowls are important subshapes and markers of Rojdi C. Close mouthed bowls are still present but most of them have their maximum diameter near or on the rim. The stud-handled bowl increases slightly in frequency but remains a relatively rare form.

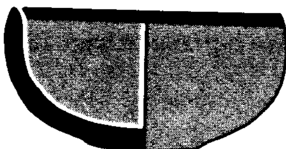
Figure 51: Rojdi C Sorath Harappan Fine Ware Bowls

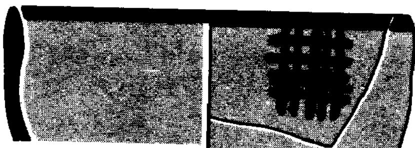
Figure 51, Number 1: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4. Exterior and Interior : reddish brown (2.5 YR 6/4) slip.

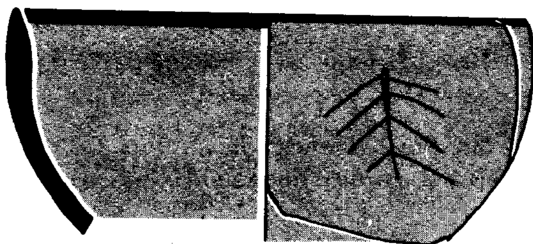
Figure 51, Number 2: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4. Exterior : reddish brown (2.5 YR 6/4) slip.
Interior : reddish brown (2.5 YR 6/4) slip, with very dusky red (10 YR 3/4) painted horizontal band on rim.

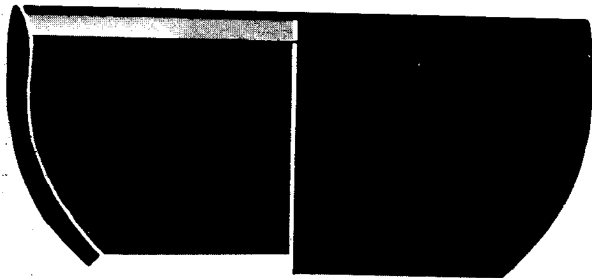

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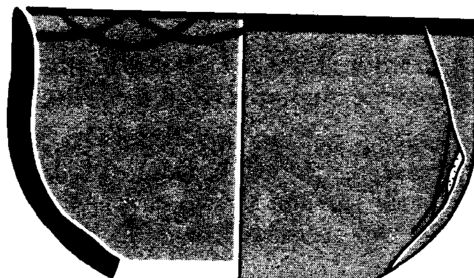

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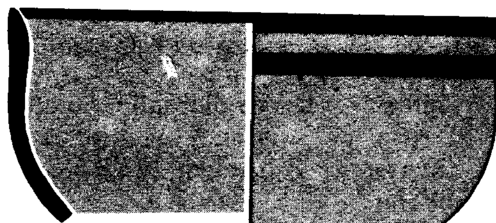

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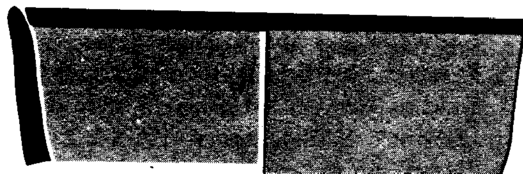

4


5


6


7


8


9

0 5 10 15 cm

Fig. 51 Rojdi C, Fine Ware Bowls

Figure 51, Number 3: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip.
Interior : light red (10 R 6/6) slip, with weak red (10 R 4/4) painted horizontal band on the rim.

Figure 51, Number 4: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : reddish brown (5 YR 6/4) slip, with a reddish gray (5 YR 5/2) painted horizontal band on the rim and cross parallel lines as "complex painted design" on the surface.
Interior : reddish brown (2.5 YR 6/4) slip.

Figure 51, Number 5: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : red (2.5 YR 5/6) slip, with a reddish gray (5 YR 5/2) painted horizontal band on the rim. "Tree"-graffito on the body surface.
Interior : red (2.5 YR 5/6) slip.

Figure 51, Number 6: Rojdi C Sorath Harappan Fine Buff Ware Bowl.
Trench 46L, stratum 4.
Exterior : grayish brown (10 YR 5/2) slip, with a reddish gray (5 YR 5/2) painted horizontal band on the rim.
Interior : grayish brown (10 YR 5/2) slip, with a very dusky red (10 YR 3/4) slipped band near the rim.

Figure 51, Number 7: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the rim. Graffito on body surface.
Interior : reddish brown (2.5 YR 6/4) slip and intersecting hanging loops as "complex painted design" on the rim.

Figure 51, Number 8: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip, with two reddish gray (5 YR 5/2) painted horizontal bands near the rim.
Interior : light red (10 R 6/6) slip.

Figure 51, Number 9: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 4.
Exterior : yellowish red (5 YR 5/6) slip, with a weak red (10 R 4/4) painted horizontal band on the rim.
Interior : light red (10 R 6/6) slip.

ROJDI C: SORATH HARAPPAN FINE WARE POTS/JARS/BASINS (Figures 52, 53 and 54)

Pots: 46L: 28 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 22 percent of the Fine Ware rims recovered from Rojdi C in 76N.
Jars: 46L: 2 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi C in 76N.
Basins: 46L: 2 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 3 percent of the Fine Ware rims recovered from Rojdi C in 76L.

There are two important changes in these Fine Ware vessel forms during Rojdi C times. First, the long necked pot with everted rim begins to be made in Rojdi C. Second, large, thick sided storage jars, pots and basins are now produced. The smaller variant of the basin remains in use.

Figure 52: Rojdi C Sorath Harappan Fine Ware Pots

Figure 52, Number 1: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.

Exterior : light red (10 R 6/6) slip, with multiple very dusky red (10 YR 3/4) painted horizontal bands on shoulder and rim.
Interior : reddish yellow (7.5 Y/R 6/6) unslipped surface.

Figure 52, Number 2: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 4.
Exterior : grayish brown (10 YR 5/2) slip expanding over interior of rim, with multiple light brownish gray (10 YR 6/2) painted horizontal bands on shoulder and rim.
Interior : pale brown (10 YR 6/3) unslipped surface.

Figure 52, Number 3: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip expanding over interior of rim, with a black (10 YR 2/1) painted horizontal band on the rim.
Interior : reddish yellow (7.5 YR 6/6) unslipped surface (the unslipped surface, painted band, and slipped band at the interior of the vessel are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").

Figure 52, Number 4: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip expanding over interior of rim, with a broad reddish gray (5 YR 5/2) painted horizontal band covering rim and upper part of the neck.
Interior : light brown (7.5 YR 6/4) unslipped surface.

Figure 52, Number 5: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 4.
Exterior : brown (7.5 YR 5/4) slip, with a weak red (10 R 4/4) painted horizontal band of the lower part of the neck and a broad weak red (10 R 4/4) painted horizontal band covering rim and upper part of the neck.
Interior : brown (10 YR 5/3) unslipped surface.

Figure 52, Number 6: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the rim.
Interior : light brown (7.5 YR 6/4) unslipped surface; weathered.

Figure 52, Number 7: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 52, Number 8: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip, with a very dusky red (10 YR 3/4) painted horizontal band and two engraved notches on the rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 52, Number 9: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 4.
Exterior : grayish brown (10 YR 5/2) slipped band bordered by two reddish gray (5 YR 5/2) painted horizontal bands on exterior of the rim; pale yellow (2.5 Y 7/4) unslipped surface (the unslipped surface, painted bands, and slipped band are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : very pale brown (10 YR 7/3) unslipped surface.

Figure 52, Number 10: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip on body of vessel; very pale brown (10 YR 7/4) unslipped horizontal band on the neck and multiple painted horizontal bands on shoulder and rim (the slipped surface, painted bands, and unslipped band are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 52, Number 11: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.

Exterior : light red (2.5 YR 6/8) slip.
Interior : reddish yellow (7.5 YR 6/6) unslipped surface.

Figure 52, Number 12: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (5 YR 4/3) slip, with very dusky red (10 YR 3/4) painted horizontal bands on rim and shoulder.
Interior : reddish yellow (5 YR 7/6) unslipped surface.

Figure 52, Number 13: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip, with a reddish gray (5 YR 5/2) painted horizontal band on the rim.
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 52, Number 14: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 46L, stratum 4.
Exterior : brown (7.5 YR 5/4) slip, with a very dusky red (10 YR 3/4) painted horizontal band on the shoulder; weathered unslipped (?) rim light brownish gray (10 YR 6/2).
Interior : light brownish gray (10 YR 6/2) unslipped surface.

Figure 52, Number 15: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip, with multiple dark gray (10 YR 4/1) painted horizontal bands on the shoulder and rim, and grouped, slightly oblique wavy lines on the shoulder as "complex painted design".
Interior : light brown (7.5 YR 6/4) unslipped surface.

Figure 52, Number 16: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (5 YR 4/3) slip expanding over interior of rim, with multiple very dusky red (10 YR 3/4) painted horizontal bands on shoulder and rim.
Interior : light brown (7.5 YR 6/4) unslipped surface (the slipped and painted bands on the interior surface of the rim, and the unslipped inner surface are the components of the "slipped-cum-unslipped" surface treatment with "bichrome effect").

Figure 52, Number 17: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 46L, stratum 4.
Exterior : red (2.5 YR 5/6) slip; two broad dark gray (10 YR 4/1) painted horizontal bands on the shoulder combined with the "source"-motif as "complex painted design".
Interior : very pale brown (10 YR 7/4) unslipped surface.

Figure 53: Rojdi C Sorath Harappan Fine Ware Jars

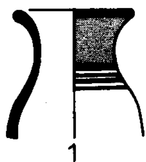
Figure 53, Number 1: Rojdi C Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip.
Interior : light red (2.5 YR 6/8) unslipped surface (weathered).

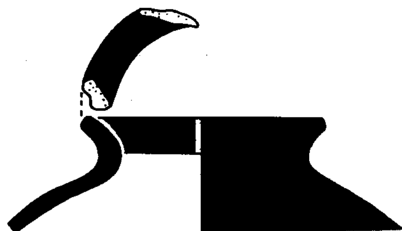
Figure 53, Number 2: Rojdi C Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 3.
Exterior : red slip.
Interior : reddish yellow (5 YR 7/6) unslipped surface (weathered).

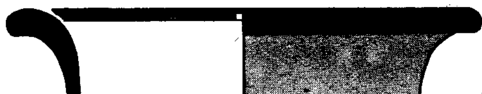
Figure 53, Number 3: Rojdi C Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 4.
Exterior : red (2.5 YR 5/6) slip.
Interior : light brownish gray (10 YR 6/2) slip.

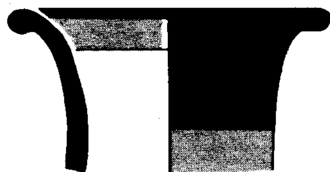
Figure 53, Number 4: Rojdi C Sorath Harappan Fine Red Ware Jar. Trench 46L, stratum 4.
Exterior and Interior : red (2.5 YR 5/6) slip.

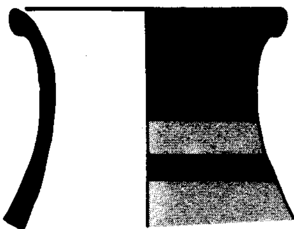
Figure 53, Number 5: Rojdi C Sorath Harappan Fine Red Ware Jar. Trench 46L, strata 2 and 3.
Exterior : reddish gray (5 YR 5/2) slip expanding over interior of rim turning into red.
Interior : light red (10 R 6/6) unslipped surface ("slipped-cum-unslipped" surface treatment).

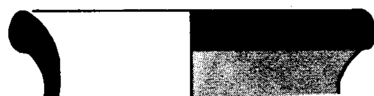


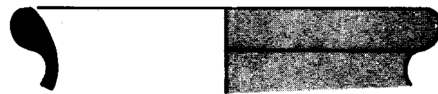




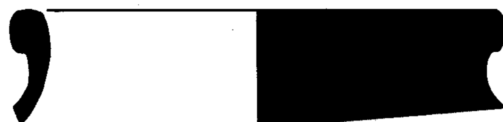


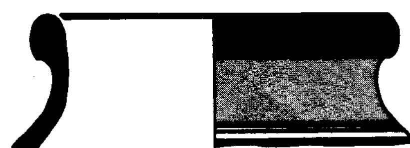


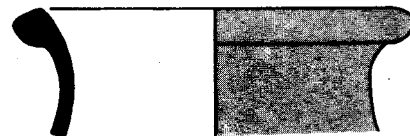












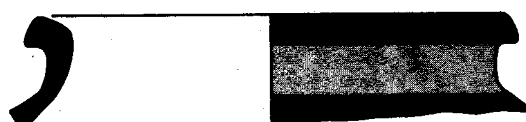
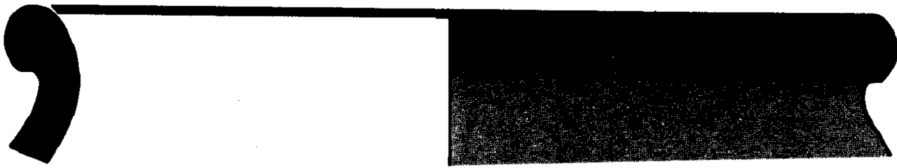
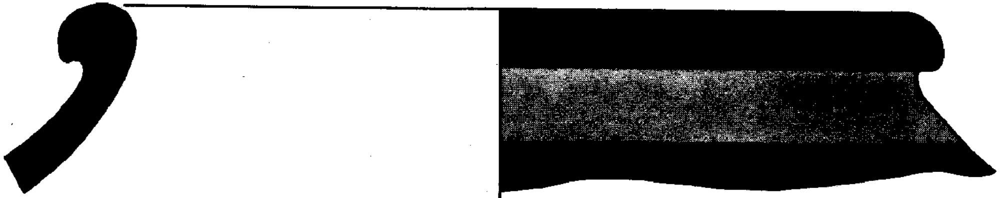
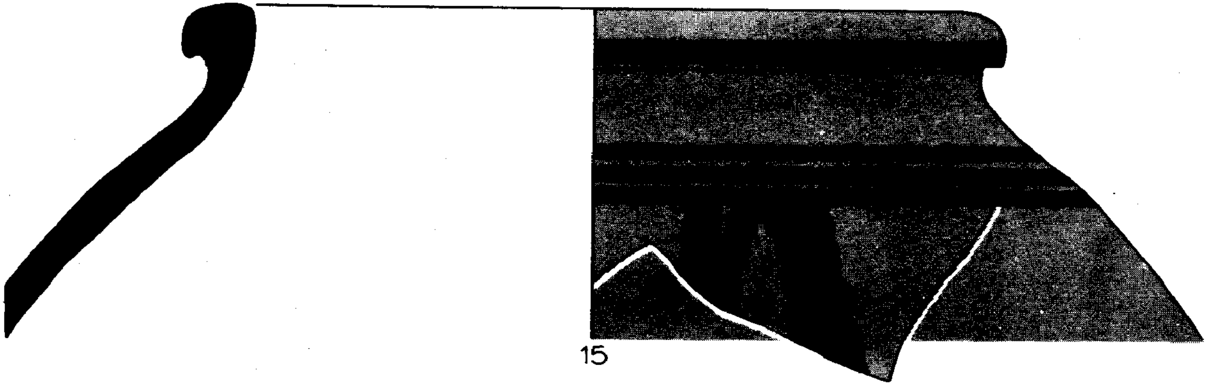


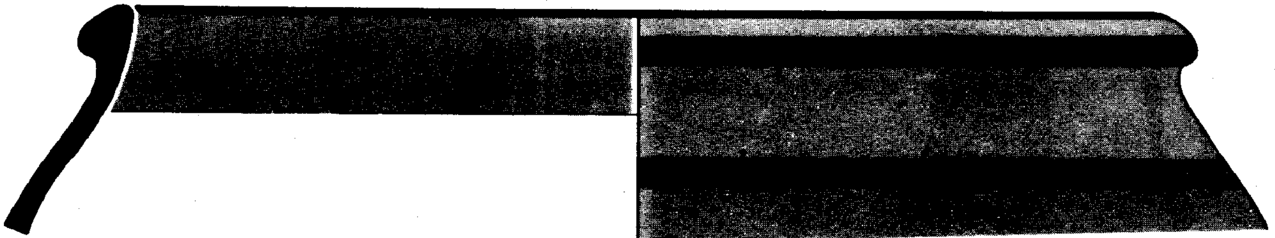


Fig. 52 (*Contd.*)









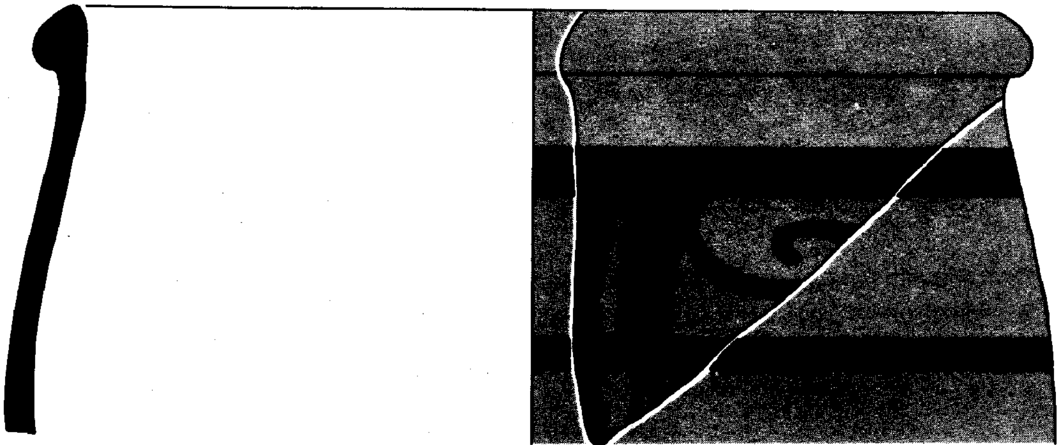
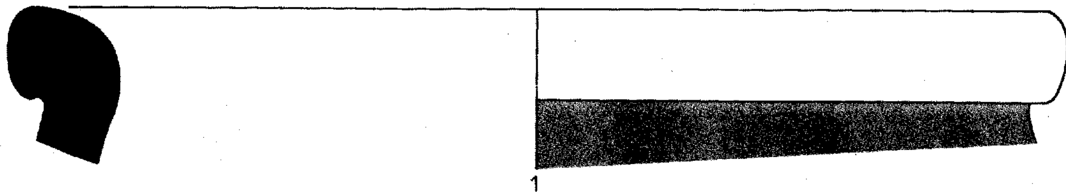


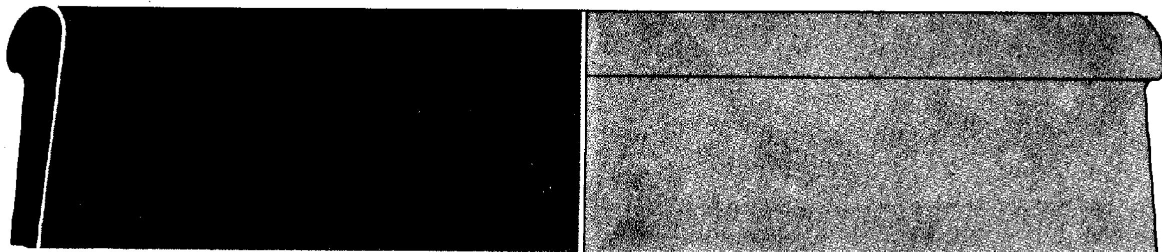
Fig. 52 Rojdi C, Fine Ware Pots



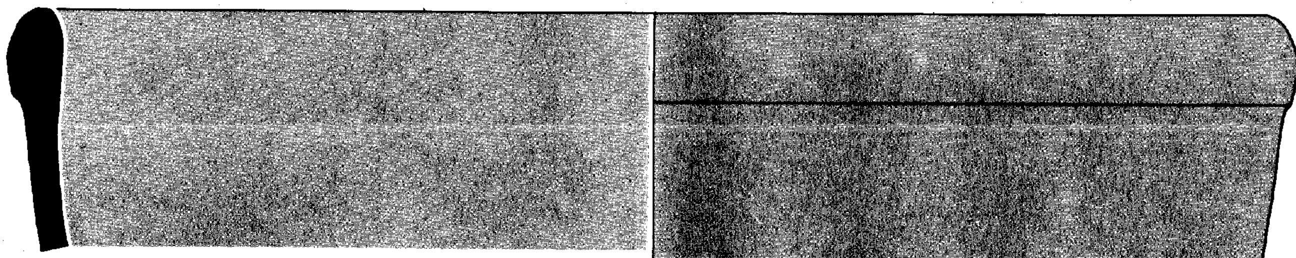
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0 5 10 15 cm

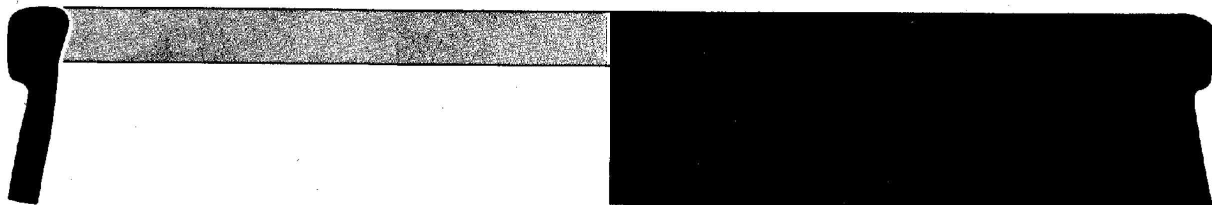
Fig. 53 (*Contd.*)



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4



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0 5 10 15cm

Fig. 53 Rojdi C, Fine Ware Jars

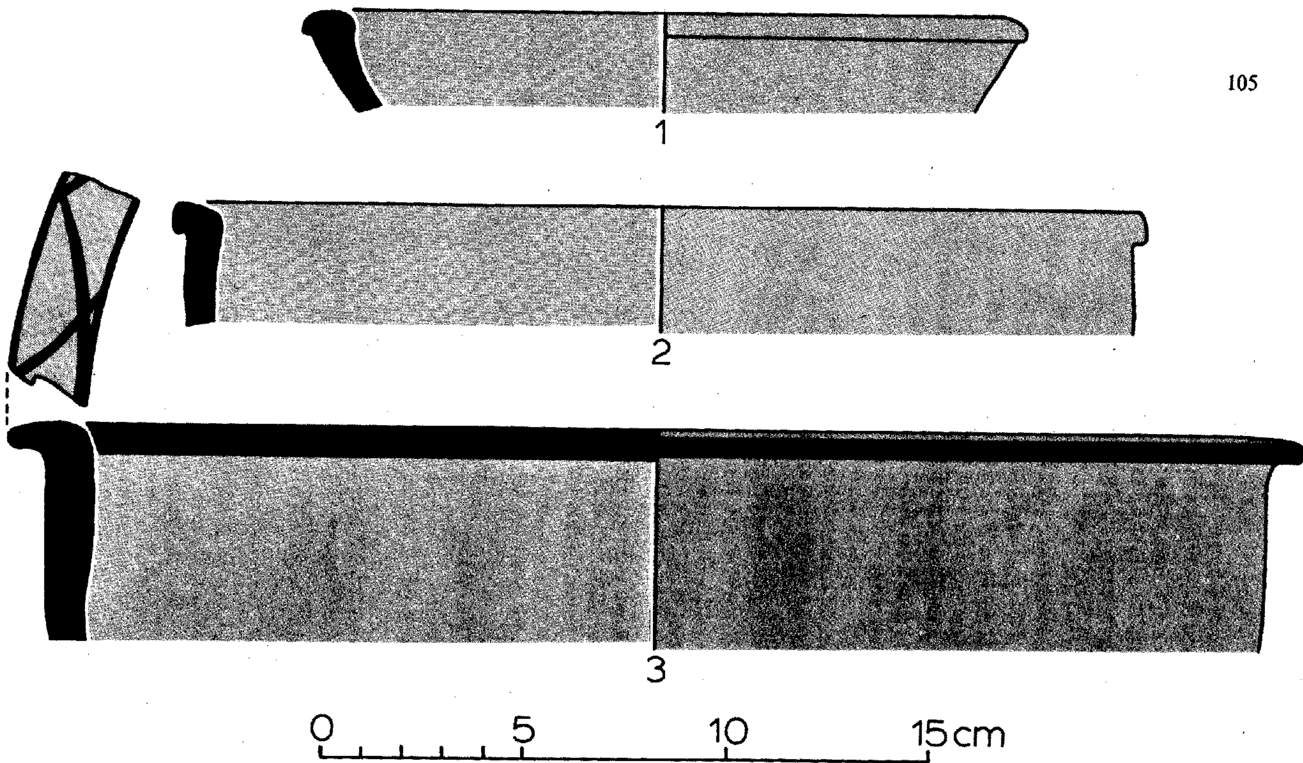


Fig. 54 Rojdi C, Fine Ware Basins

Figure 54: Rojdi C Sorath Harappan Fine Ware Basins

Figure 54, Number 1: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 4.
Exterior and Interior : light red (10 R 6/6) slip.

Figure 54, Number 2: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 4.
Exterior and Interior : red (2.5 YR 5/6) slip.

Figure 54, Number 3: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 46L, stratum 4.
Exterior : yellowish red (5 YR 5/6) slip, with two weak red (10 R 5/3) painted horizontal bands and intersecting single hanging loops as "complex painted design" on the rim.
Interior : yellowish red (5 YR 5/6) slip.

ROJDI C: SORATH HARAPPAN FINE WARE DISHES/DISHES-ON-STAND (Figure 55)

Dish: 46L: 3 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 4 percent of the Fine Ware rims recovered from Rojdi C in 76N.
Dish-on-Stand: 46L: 1 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi C in 76N.

Twenty-eight stand rims from dishes-on-stand were recovered from Rojdi C in 46L.

Rojdi C brings a new range of dish forms. These replace some of the earlier convex-sided types. The typical dish of Rojdi C is thick sided and draws upon a Rojdi B type with carinated shoulder and everted rim. Beaded rims, everted downward and outsplayed variants are characteristic of this phase. Stands of the dish-on-stand tend to have a rounded or triangular raised rim at the bottom.

Figure 55: Rojdi C Sorath Harappan Fine Ware Dishes and Dishes-on-Stand

Figure 55, Number 1: Rojdi C Sorath Harappan Fine Red Ware Dish. Trench 46L, stratum 4.
Exterior : reddish brown (2.5 YR 6/4) slip, with a reddish gray (5 YR 5/2) painted horizontal band on the exterior of the rim.
Interior : reddish brown (2.5 YR 6/4) slip.

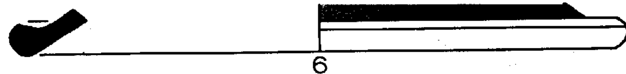
Figure 55, Number 2: Rojdi C Sorath Harappan Fine Buff Ware Dish. Trench 46L, stratum 3.
Exterior : dark brown (7.5 YR 3/2) slip.
Interior : dark grayish brown (10 YR 4/2) slip.

Figure 55, Number 3: Rojdi C Sorath Harappan Fine Buff Ware Dish. Trench 46L, strata 3 and 4.
Exterior : brown (7.5 YR 5/4) slip, with a black (10 YR 2/1) painted horizontal band on the shoulder.
Interior : brown (7.5 YR 5/4) slip.
Dish of a dish-on-Stand?

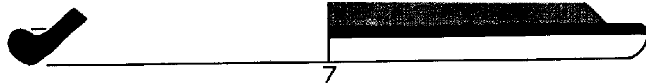
Figure 55, Number 4: Rojdi C Sorath Harappan Fine Red Ware Dish-on-Stand. Trench 46L, stratum 3.
Exterior : reddish brown (2.5 YR 6/4) slip, with multiple weak red (10 R 4/4) painted horizontal bands on body and rim; light brown (7.5 YR 6/4) unslipped rim (the unslipped band, painted bands and slipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : light brown (7.5 YR 6/4) unslipped surface.

Figure 55, Number 5: Rojdi (B?)C Sorath Harappan Fine Red Ware Dish-on-Stand. Trench 46L, strata 4 and 5.
Exterior : light red (10 R 6/6) slip, with reddish gray (5 YR 5/2) painted horizontal bands on carinated shoulder and rim.
Interior : light red (10 R 6/6) slip, reddish gray (5 YR 5/2) 'intersecting single hanging loops' as "complex painted design" on top of the rim.



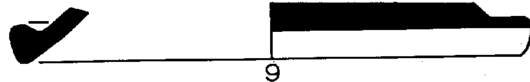


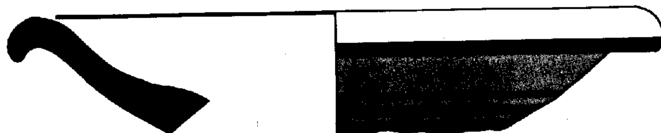














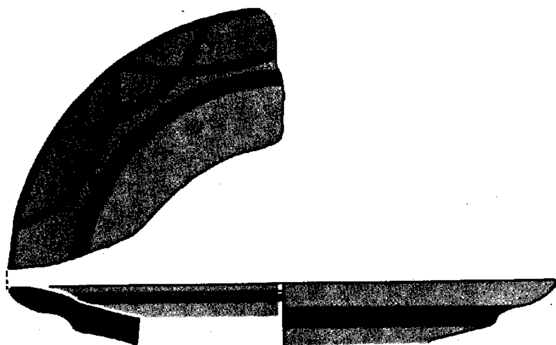


Fig. 55 Rojdi C, Fine Ware Dishes-on-Stand

Figure 55, Number 6: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 3.
Exterior : reddish brown (2.5 YR 6/4) slip on body of the stand, light brown (7.5 YR 6/4) unslipped surface on bottom of the rim ("slipped-cum-unslipped" surface treatment).
Interior : light brown (7.5 YR 6/4) unslipped of stand.

Figure 55, Number 7: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 3.
Exterior : a very dusky red (10 YR 3/4) painted horizontal band on top of the stand rim separates the reddish brown (2.5 YR 6/4) slip on the body of the stand from the reddish yellow (7.5 Y/R 6/6) unslipped band at the bottom of the rim. The unslipped band, painted band and slipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect".
Interior : reddish yellow (7.5 Y/R 6/6) unslipped surface.

Figure 55, Number 8: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 46L, stratum 4.
Exterior : a reddish gray (5 YR 5/2) painted horizontal band on top of the stand rim separates the reddish brown (2.5 YR 6/4) slip on the body of the stand from the reddish yellow (7.5 YR 6/6) unslipped band at the bottom of the rim (the unslipped band, painted band and slipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : reddish yellow (7.5 Y/R 6/6) unslipped surface.

Figure 55, Number 9: Rojdi C Sorath Harappan Fine Buff Ware Stand of a Dish-on-Stand. Trench 46L, stratum 4.
Exterior : a black (10 YR 2/1) painted horizontal band on top of the stand rim separates the brown (7.5 YR 5/3) slip on the body of the stand from the pale yellow (5 Y 8/3) unslipped band at the bottom of the rim (the unslipped band, painted band and slipped surface are the components of a "slipped-cum-unslipped" surface treatment with "bichrome effect").
Interior : pale yellow (5 Y 8/3) unslipped surface.

ROJDI C: SORATH HARAPPAN FINE WARE GOBLET/BOTTLE (Unillustrated)

In the 46L and 76N soundings no goblets were found in Rojdi C contexts. The bottle form, with an extreme internal projection, is joined by a very narrow necked flask with a simple externally projecting rim. Bottles remain rare.

ROJDI C: SORATH HARAPPAN FINE WARE LAMP (Figure 56)

46L: 2 percent of the Fine Ware rims recovered from Rojdi C in 46L.
76N: 1 percent of the Fine Ware rims recovered from Rojdi C in 76N.

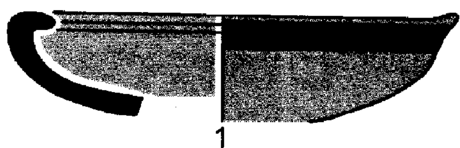
The "Saurashtra lamp," with a lip projection for the wick, appears first in Rojdi C. This vessel type is an excellent time-marker for the pottery of Rojdi C.

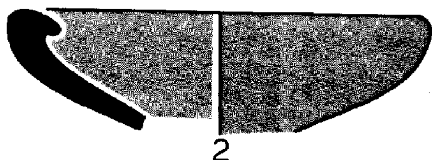
Figure 56: Rojdi C Sorath Harappan Fine Ware Lamps

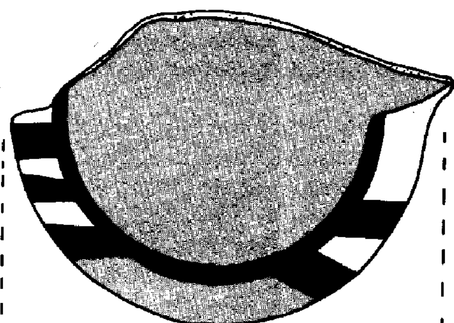
Figure 56, Number 1: Rojdi C Sorath Harappan Fine Red Ware Lamp. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip, with a 34 painted horizontal band on the rim.
Interior : light red (10 R 6/6) slip.

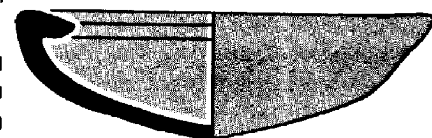
Figure 56, Number 2: Rojdi C Sorath Harappan Fine Red Ware Lamp. Trench 46L, stratum 4.
Exterior : reddish yellow (7.5 Y/R 6/6) slip.
Interior : and light red (2.5 YR 6/8) slip.

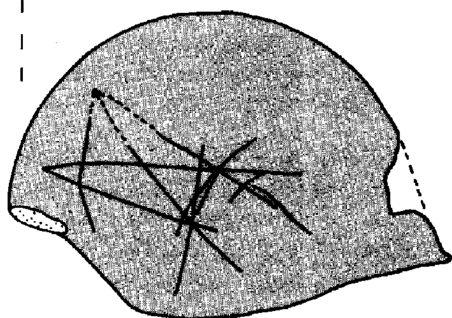
Figure 56, Number 3: Rojdi C Sorath Harappan Fine Red Ware Lamp. Trench 46L, stratum 4.
Exterior : light red (10 R 6/6) slip, with a weak red (10 R 4/4) painted horizontal bands at the interior

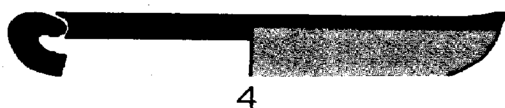












0 5 10 15 cm

Fig. 56 Rojdi C, Fine Ware "Saurashtra Lamps"

of the rim and grouped thick weak red (10 R 4/4) painted oblique strokes on the top of the rim as "complex painted design"; irregular "crossed square"-graffito on the bottom of the lamp. Interior : light red (10 R 6/6) slip.

Figure 56, Number 4: Rojdi C Sorath Harappan Fine Red Ware Lamp. Trench 46L, stratum 3. Exterior : light red (10 R 6/6) slip, with a black (10 YR 2/1) painted horizontal band on the rim. Interior : reddish yellow (7.5 Y/R 6/6) unslipped surface.

OTHER ROJDI C: SORATH HARAPPAN VESSEL FORMS

The complete section of a jar stand was recovered from Rojdi C contexts on the South Extension. While it is not from 76N, it is a part of the final phase form inventory. No Sorath Harappan pottery lids have been identified at Rojdi.

ROJDI C: SORATH HARAPPAN FINE WARE DECORATION AND SURFACE TREATMENT

There is no clear trend in the frequency of all forms of decoration and surface treatment on Fine Ware vessels of Rojdi C. In trench 46L the number of decorated Fine Ware sherds increases from 4 percent to 5 percent while in trench 76N a decrease from 2 percent to 1 percent was recorded (Tables 29 and 30).

In 46L "complex painted designs" appear on approximately 1.6 percent of the Rojdi C Fine Ware sherds. Graffiti is represented on up to 2.2 percent of the sherds. Burnished patterns increase to 1.1 percent. These three decorative techniques are more than occasionally combined, especially with regard to the burnishing.

Rojdi C is a period with significantly more complex painted designs on the Fine Wares than have been found in earlier phases. The designs include both geometric and non-geometric motifs. Painting in this phase can involve the combination of multiple geometric motifs and an expansion of the areas of the pot covered with designs. Representations of plants and animals are rare, but appear on vessels for the first time in Rojdi C (Plates 32, 33 and 34). Drawings of flowers, leaves and trees occur, along with bulls, deer, the peacock, and possibly a fish. It is interesting to note that when animal figures are used they are usually set in combination with schematic, stylized plant motifs.

In this final almost all the Fine Ware vessels are completely covered with slips. The number of sherds with painted horizontal bands is reduced to 15 percent of the total Fine Ware sherds. Only a few vessels have horizontal incised lines.

The graffiti of Rojdi C is more complex than in earlier periods and may combine both ornamental and symbolic meanings. Rojdi C designs include: triangles forming a kind of endless knot; the crossed quadrant bordered with one or two zigzag lines; the the bucranium motif; the six pointed star; the swastika; the trident and the "tree" (Figure 65, numbers 11 to 21).

ROJDI C: SORATH HARAPPAN COARSE WARES: COARSE BLACK AND RED, COARSE GREY

46L: 20 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi C in 46L.
76N: 15 percent of the total rims recovered from both Fine and Coarse Wares of Rojdi C in 76N.

Coarse Wares are a smaller percentage of the total ceramic corpus as compared to Rojdi A and B. They retain the same composition of fabric, but they are less well baked than in previous phases. Sherds can easily be broken by hand and the edges of the sherds do not hold their shape.

Of the Coarse Wares of Rojdi C the Coarse Red Ware is increased over figures for Rojdi B. For example, the Coarse Red Ware in trench 46L, Rojdi B is 31 percent of the total Coarse Wares. In the same trench it is 56 percent of the Coarse Wares in Rojdi C. In 76N the figure is 20 percent for Rojdi B and 39 percent for Rojdi C.

The Coarse Ware vessel forms of the previous phase are still made, but large storage jars and pots are added to the vessel form repertory. Dishes appear with heavy, new forms. Basins, range from

large to small. Saurashtra lamps and dishes-on-stand appear in rare instances to be made in the Coarse Ware fabric.

Rojdi C has the same Coarse Ware surface treatments as were found in Rojdi B. The burnished slip covers almost the entire body. Except for the burnished lines on the interior of dishes, decorations are as restricted as in the previous phases.

ROJDI C: COARSE WARE VESSEL FORMS ROJDI C: COARSE WARE POTS/JARS (Figure 57)

Pots: 46L: 39 percent of the Coarse Ware rims recovered from Rojdi C in 46L.
76N: 43 percent of the Coarse Ware rims recovered from Rojdi C in 76N.
Jars: 46L: 18 percent of the Coarse Ware rims recovered from Rojdi C in 46L.
76N: 8 percent of the Coarse Ware rims recovered from Rojdi C in 76N.

The storage pots and jars characteristic of the Rojdi C Coarse Ware are found in Figure 57.

Figure 57: Rojdi C Sorath Harappan Coarse Ware Pots and Jars

Figure 57, Number 1: Rojdi C Sorath Harappan Coarse Grey Ware Pot. Trench 46L, stratum 3.
Exterior : gray slip; a corrugated horizontal band on the shoulder.
Interior : gray slip.

Figure 57, Number 2: Rojdi C Sorath Harappan Coarse Grey Ware Pot. Trench 46L, stratum 4.
Exterior : weak red (10 R 5/3) slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior : reddish brown (5 YR 4/3) unslipped surface.

Figure 57, Number 3: Rojdi C Sorath Harappan Coarse Grey Ware Pot. Trench 46L, stratum 4.
Exterior : gray to black (10 YR 2/1) shaded slip expanding over interior of rim; corrugated horizontal bands on shoulder.
Interior : unslipped surface.

Figure 57, Number 4: Rojdi C Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 4.
Exterior and Interior : light red (10 R 6/6) slip.

Figure 57, Number 5: Rojdi C Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 4.
Exterior : brown (7.5 YR 5/4) slip.
Interior : red (2.5 YR 5/6) slip.

Figure 57, Number 6: Rojdi C Sorath Harappan Coarse Red Ware Pot. Trench 46L, stratum 4.
Exterior : reddish brown (5 YR 4/3) slip.
Interior : red (2.5 YR 5/6) slip.

Figure 57, Number 7: Rojdi C Sorath Harappan Coarse Red Ware Jar. Trench 46L, stratum 4.
Exterior and Interior : reddish brown (5 YR 4/3) slip.

Figure 57, Number 8: Rojdi C Sorath Harappan Coarse Red Ware Jar. Trench 46L, stratum 4.
Exterior and Interior : brown (7.5 YR 5/4) slip.

ROJDI C: SORATH HARAPPAN COARSE WARE DISHES AND BASINS (Figure 58)

Dishes: 46L: 10 percent of the Coarse Ware rims recovered from Rojdi C in 46L.
76N: 8 percent of the Coarse Ware rims recovered from Rojdi C in 76N.
Basins: 46L: 4 percent of the Coarse Ware rims recovered from Rojdi C in 46L.
76N: 2 percent of the Coarse Ware rims recovered from Rojdi C in 76N.

The most typical dish type of this phase is the shallow heavy dish with a rounded or slightly quadrangular everted rim and a pronounced rounded flange on the shoulder. This form is a reliable time-marker of Rojdi C. Another shallow dish with a thin side, carinated shoulder and triangular on quadrangular everted rim has its counterpart in the basin, where the sides are almost vertical. Other dish forms of Rojdi B are still in use.

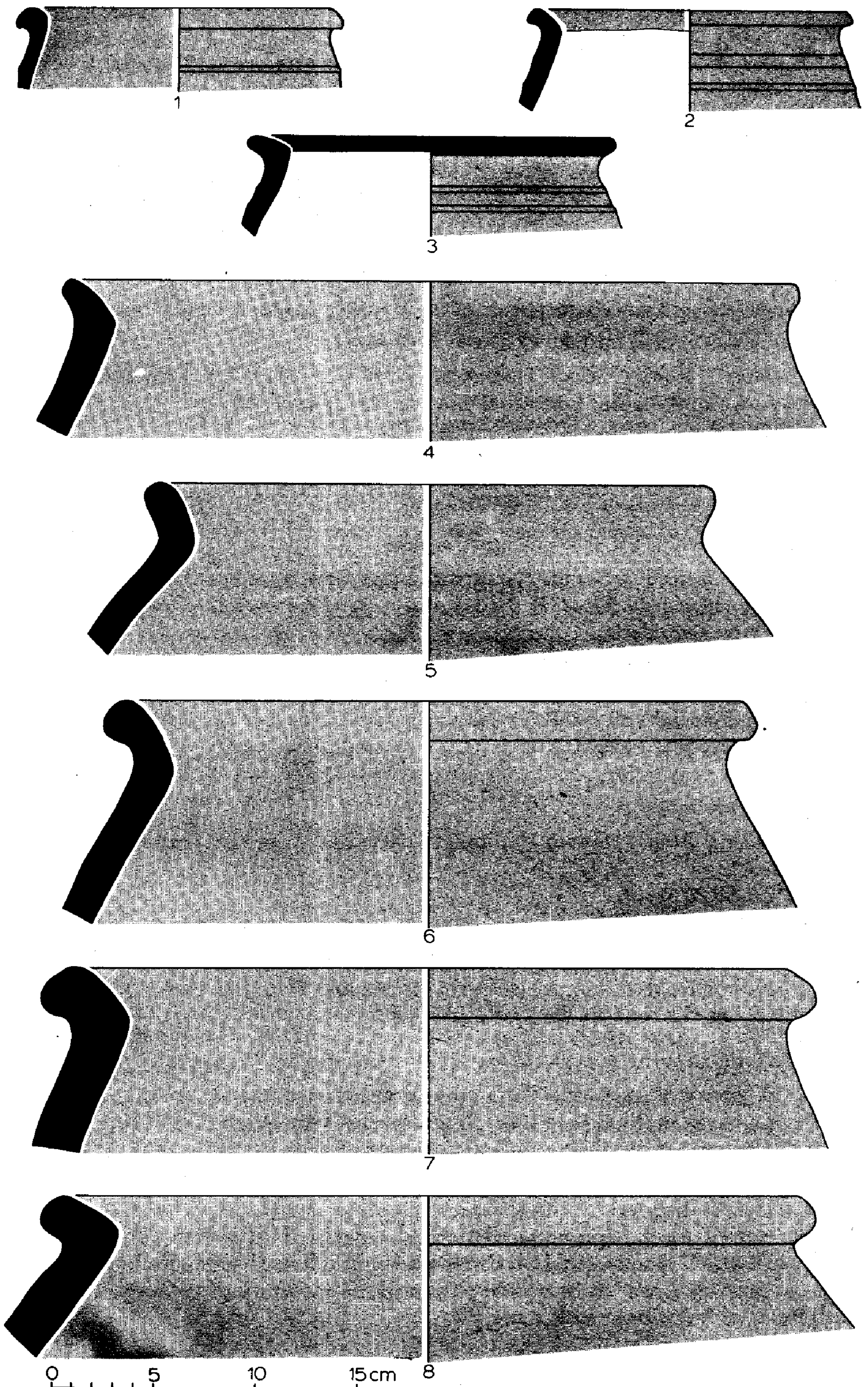


Fig. 57 Rojdi C, Coarse Ware Pots and Jars

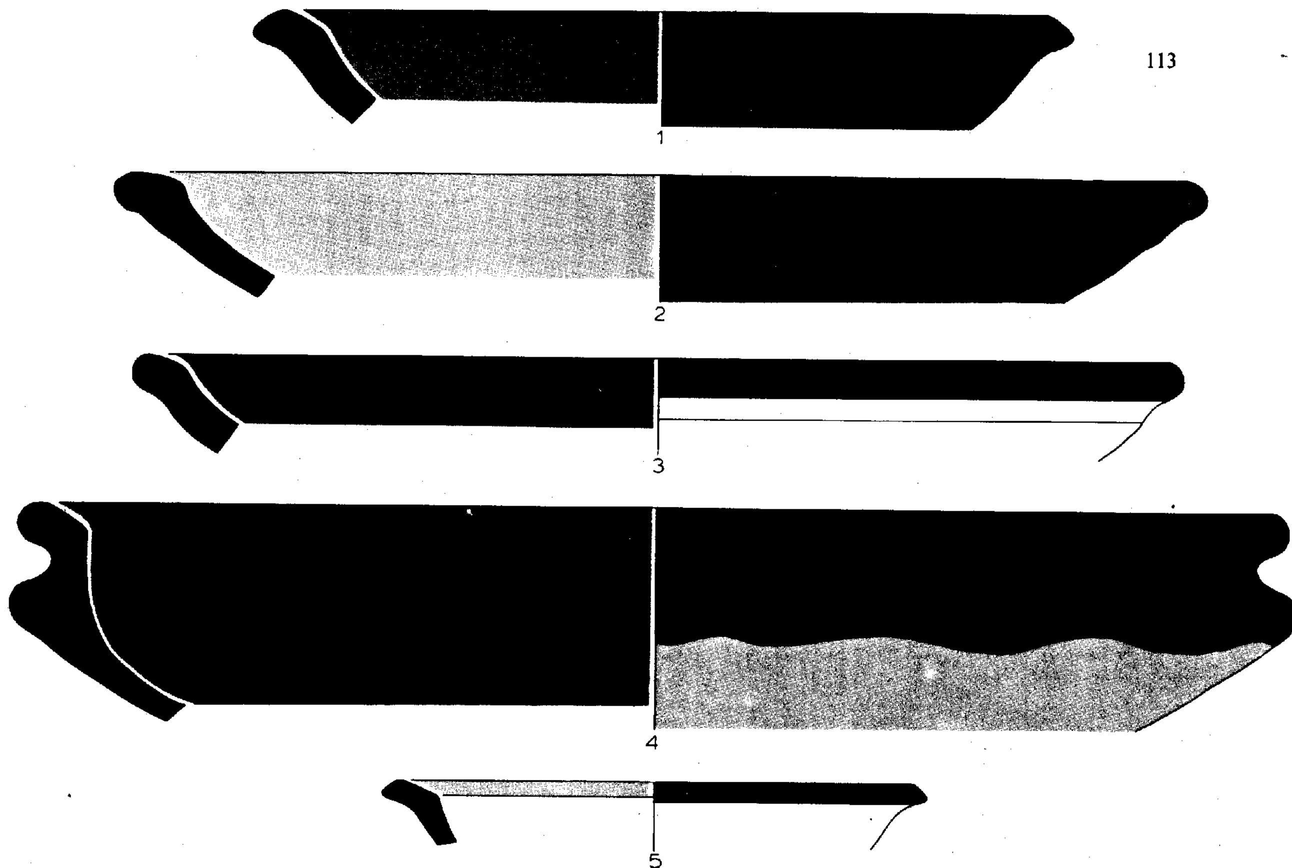


Fig. 58 Rojdi C, Coarse Ware Dishes and Small Basins

Figure 58: Rojdi C Sorath Harappan Coarse Ware Dishes and Small Basin

Figure 58, Number 1: Rojdi C Sorath Harappan Coarse Red Ware Dish. Trench 46L, stratum 4.
Exterior : dark grayish brown (10 YR 4/2) slip.
Interior : brown (7.5 YR 5/3) slip.

Figure 58, Number 2: Rojdi C Sorath Harappan Coarse Red Ware Dish. Trench 46L, stratum 4.
Exterior : dark brown (7.5 YR 3/2) slip.
Interior : reddish brown (5 YR 4/3) slip.

Figure 58, Number 3: Rojdi C Sorath Harappan Coarse Black-and-Red Ware Dish. Trench 46L, stratum 3.
Exterior : dark grayish brown (10 YR 4/2) to red (10 R 4/6) shaded slip.
Interior : dark grayish brown (10 YR 4/2) slip.

Figure 58, Number 4: Rojdi C Sorath Harappan Coarse Black-and-Red Ware Dish. Trench 46L, stratum 4.
Exterior : dark grayish brown (10 YR 4/2) to reddish brown (5 YR 4/3) shaded slip.
Interior : dark grayish brown (10 YR 4/2) slip.

Figure 58, Number 5: Rojdi C Sorath Harappan Coarse Red Ware Basin. Trench 46L, stratum 4.
Exterior : reddish gray (5 YR 5/2) slip.
Interior : very dusky red (10 YR 3/4) slip.

Other Rojdi Ceramics

ROJDI SORATH HARAPPAN CRUDE BUFF WARE

A Crude Buff Ware, also known as "Chucky Ware," is found in small quantities in all three ceramic periods at Rojdi. This is one of those products that lie somewhere between real pottery and objects made of earth and temper. "Chucky Ware" is made of earth, clay and a great deal of vegetable temper and filler. Sherds are thick, very soft, brittle, and distinctly layered in profile. Excavated fragments indicate that the "vessels" were made and fired *in situ*. The unequally fired core, buff to gray in color, and charcoal markings suggest that this ware can be associated with hearths or fireplaces, and that they might have functioned as recipients for burning fuel. Only two forms seem to have been in use: a flat quadrangular "dish" with triangular edges and very thick sides and a basin-like form with vertical sides and a flat rim (Figure 59).

Figure 59: Rojdi Sorath Harappan Crude Buff Ware (Chucky Ware)

Figure 59, Number 1: Chucky Ware Rim Sherd of a "Dish". Trench 46L, stratum 12, Rojdi A.

Figure 59, Number 2: Chucky Ware Rim Sherd of a "Dish". Trench 46L, stratum 10, Rojdi A.

Figure 59, Number 3: Chucky Ware Rim Sherd of a "Dish". Trench 46L, stratum 10, Rojdi A.

Figure 59, Number 4: Chucky Ware Rim Sherd of a "Dish". Trench 46L, stratum 10, Rojdi A.

Figure 59, Number 5: Chucky Ware Body Sherd of a "Dish". Trench 46L, stratum 10, Rojdi A.

HAND-MADE SORATH HARAPPAN COARSE GREY AND FINE GREY WARE

Hand-made Grey Wares occur in all three ceramic periods at Rojdi. The vessel forms are illustrated on Figure 60.

Figure 60: Rojdi Sorath Harappan Hand-made Grey Wares

Figure 60, Number 1: Hand-made Grey Ware Bowl. Trench 46L, stratum 20, Rojdi A.

Figure 60, Number 2: Hand-made Grey Ware Pot. Trench 46L, stratum 13, Rojdi A.

Figure 60, Number 3: Hand-made Grey Ware Lid. Trench 46L, stratum 11, Rojdi A.

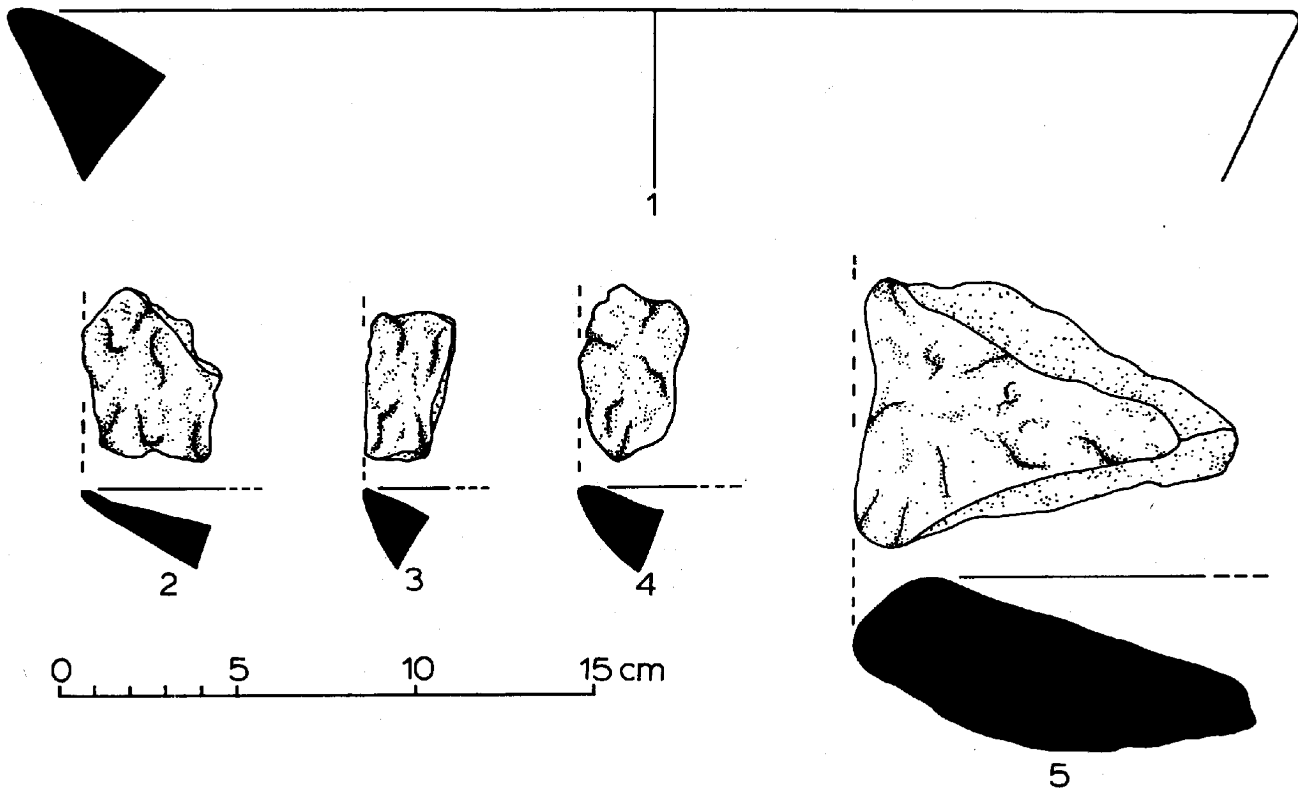


Fig. 59 Rojdi Crude Buff Ware

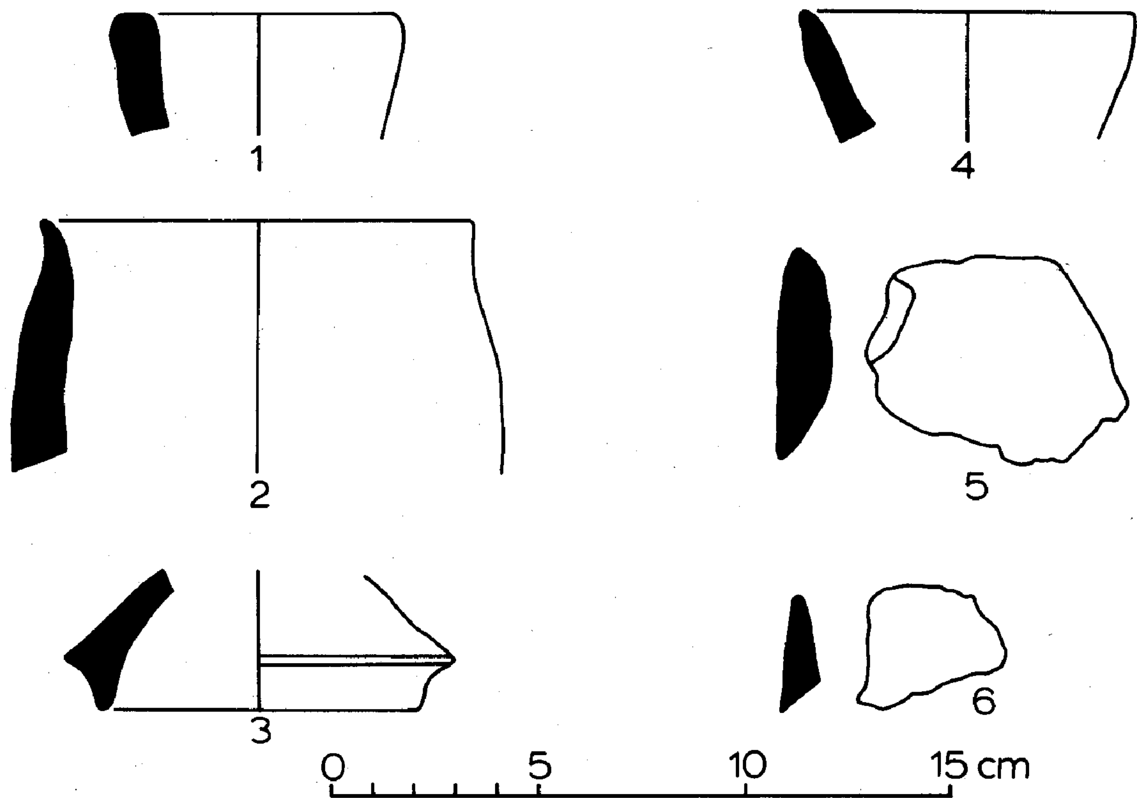


Fig. 60 Rojdi Handmade Grey Wares

Figure 60, Number 4: Hand-made Grey Ware Bowl. Trench 46L, stratum 10, Rojdi A.

Figure 60, Number 5: Hand-made Grey Ware "Mushti". Trench 46L, stratum 9, Rojdi A.

Figure 60, Number 6: Hand-made Grey Ware "Mushti". Trench 46L, stratum 9, Rojdi A.

PRABHAS WARE, SMOOTH RED WARE AND FINE BLACK AND RED WARE

Illustrations of these wares found at Rojdi, including their stratigraphic location are shown in Figures 56, 57 and 58.

Figure 61: Prabhas Ware

Figure 61, Number 1: Prabhas Red Ware Pot (?). Trench 46L, stratum 20, Rojdi A.

Figure 61, Number 2: Prabhas Red Ware Bowl. Trench 46L, stratum 20, Rojdi A.

Figure 61, Number 3: Prabhas Red Ware Bowl. Trench 46L, stratum 12, Rojdi A.

Figure 61, Number 4: Prabhas Buff Ware Bowl. Trench 46L, stratum 12, Rojdi A.

Figure 61, Number 5: Prabhas Buff Ware Related Bowl. Trench 46L, strata 12 and 10, Rojdi A.

Figure 61, Number 6: Prabhas Red Ware Bowl. Trench 46L, stratum 10, Rojdi A.

Figure 61, Number 7: Prabhas Red Ware Bowl. Trench 46L, stratum 10, Rojdi A.

Figure 61, Number 8: Prabhas Grey Ware Bowl. Trench 46L, stratum 10, Rojdi A.

Figure 61, Number 9: Prabhas Red Ware Bowl. Trench 46L, stratum 9, Rojdi A.

Figure 61, Number 10: Prabhas Buff Ware Bowl. Trench 46L, stratum 8, Rojdi B.

Figure 61, Number 11: Prabhas Red Ware Bowl. Trench 46L, stratum 8, Rojdi B.

Figure 61, Number 12: Prabhas Red Ware Pot. Trench 46L, stratum 8, Rojdi B.

Figure 61, Number 13: Prabhas Red Ware Dish. Trench 46L, stratum 8, Rojdi B.

Figure 61, Number 14: Prabhas Buff Ware Bowl. Trench 46L, stratum 5, Rojdi B.

Figure 61, Number 15: Prabhas Buff Ware Bowl. (?) Trench 46L, stratum 5, Rojdi B.

Figure 61, Number 16: Prabhas Red Ware Body Sherd with Graffito. Trench 46L, stratum 5, Rojdi B.

Figure 61, Number 17: Prabhas Red Ware Body Sherd with Graffito. Trench 46L, stratum 5, Rojdi B.

Figure 61, Number 18: Prabhas Red Ware Bowl. Trench 46L, stratum 4, Rojdi C.

Figure 61, Number 19: Prabhas Buff Ware Body Sherd with Graffito. Trench 46L, stratum 4, Rojdi C.

Figure 61, Number 20: Prabhas Buff Ware Body Sherd with Graffito. Trench 46L, stratum 4, Rojdi C.

Figure 61, Number 21: Prabhas Buff Ware Sherd with Graffito. Trench 46L, stratum 4, Rojdi C.

Figure 61, Number 22: Prabhas Buff Ware Bowl. Trench 46L, stratum 3, Rojdi C.

Figure 61, Number 23: Prabhas Grey Ware Bowl. Trench 46L, stratum 5, Rojdi C.

Figure 61, Number 24: Prabhas Buff Ware Pot. Trench 46L, stratum 2, Rojdi C.

Figure 61, Number 25: Prabhas Buff Ware Pot. Trench 46L, stratum 2, Rojdi C.

Figure 61, Number 26: Prabhas Red Ware Body Sherd with "Complex Painted Design". Trench 46L, stratum 1, Rojdi C.

Figure 62: Smooth Red Ware

Figure 62, Number 1: Smooth Red Ware Bowl. Trench 76N, stratum 8, Rojdi A.

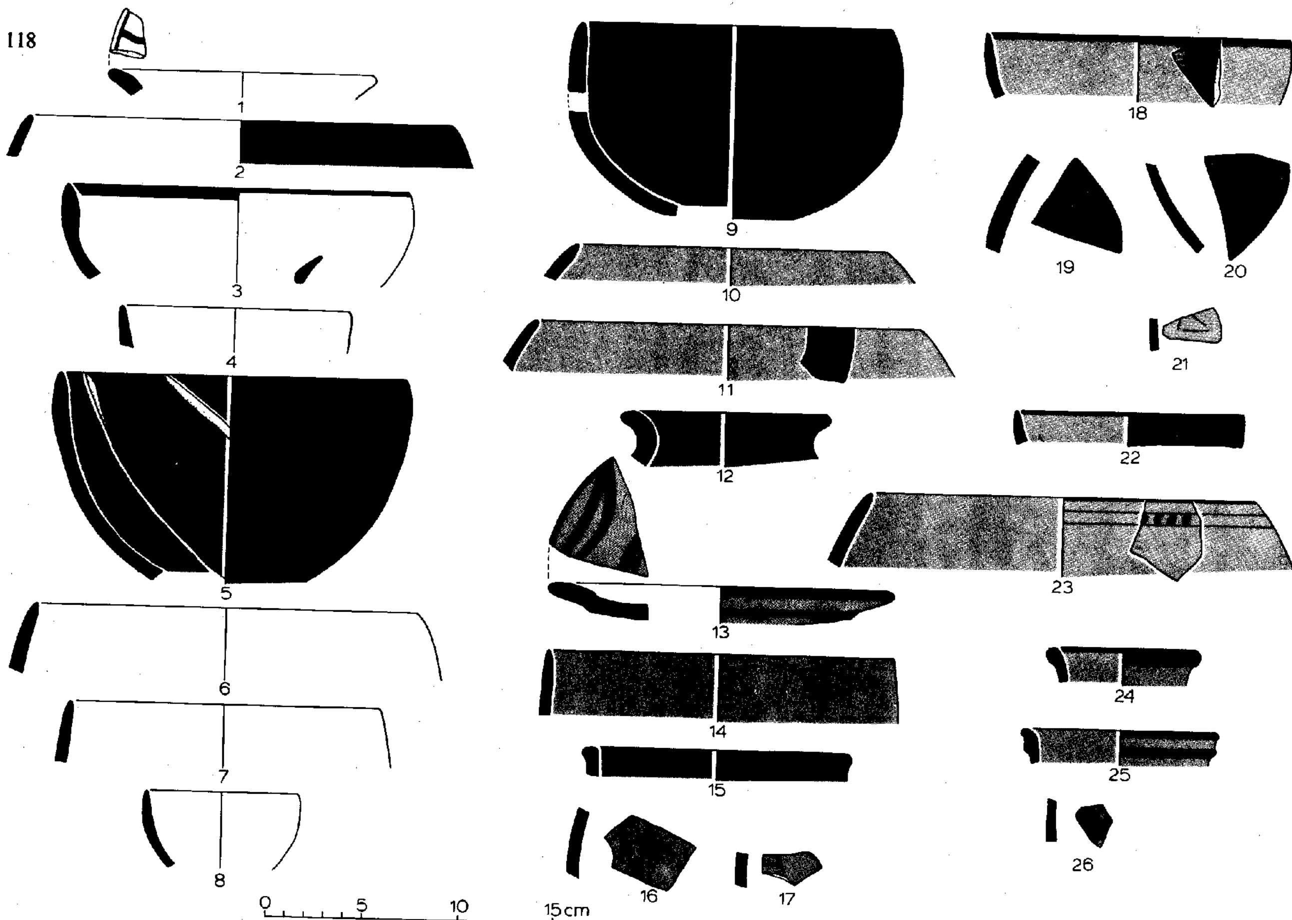


Fig. 61 Prabhas Ware

Figure 62, Number 2: Smooth Red Ware Stud-handle of a Stud-handled Bowl. Trench 46L, stratum 5, Rojdi B.

Figure 62, Number 3: Smooth Red Ware Bowl. Trench 46L, stratum 3, Rojdi C.

Figure 62, Number 4: Smooth Red Ware Bowl. Trench 46L, stratum 3, Rojdi C.

Figure 62, Number 5: Smooth Red Ware Bowl. Trench 46L, stratum 2, Rojdi C.

Figure 62, Number 6: Smooth Red Ware Bowl. Trench 76N, stratum 5, Rojdi C.

Figure 63: Fine Black-and-Red Ware

Figure 63, Number 1: Fine Black-and-Red Ware Bowl. Trench 45K, stratum 5, Rojdi B/C?.

LUSTROUS RED WARE

Lustrous Red Ware is extremely rare at Rojdi. All the examples of this ceramic come from Rojdi C contexts. Four examples of Lustrous Red Ware may be found on Figure 64.

Figure 64: Lustrous Red Ware

Figure 64, Number 1: Loustrous Red Ware Base with a "Complex painted Design". Trench 46L, stratum 4, Rojdi C.

Figure 64, Number 2: Loustrous Red Ware Unperforated Disk (?) with Graffito. Trench 46L, stratum 4, Rojdi C.

Figure 64, Number 3: Loustrous Red Ware Bowl. Trench 46L, stratum 2, Rojdi C.

Figure 64, Number 4: Sorath Harappan Coarse Red Ware Form. Trench 45K, stratum 3, Rojdi C.

Graffiti at Rojdi

A large number of sherds from all three ceramic phases at Rojdi were inscribed with graffiti marks. A selection of these "annotations" are given in Figure 65.

Figure 65: Graffiti from Rojdi

Figure 65, Number 1: Graffito on a Rojdi A Sorath Harappan Fine Buff Ware Shoulder Sherd of a Pot. Trench 46L, stratum 13.
Exterior: simple engraved vertical line on the shoulder.

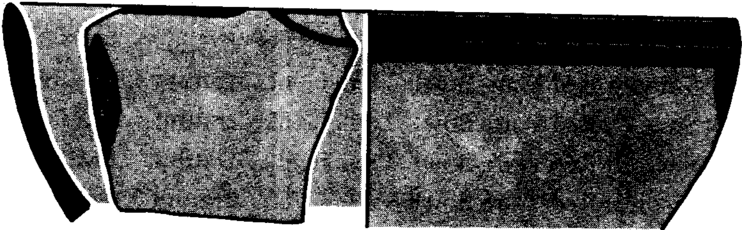
Figure 65, Number 2: Graffito on a Rojdi A Sorath Harappan Fine Buff Ware Bowl Rim. Trench 46L, stratum 12.
Exterior: engraved upside-down "trident" on the body surface of the bowl.

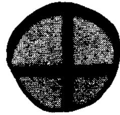
Figure 65, Number 3: Graffito on a Rojdi A Sorath Harappan Fine Red Ware Base of a Bowl. Trench 46L, stratum 16.
Exterior: engraved simple cross on exterior bottom of the bowl base.

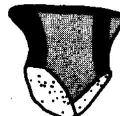
Figure 65, Number 4: Graffito on a Rojdi A Sorath Harappan Fine Buff Ware Body Sherd. Trench 46L, stratum 13.
Exterior: fragment of a graffito on the body surface of the vessel.

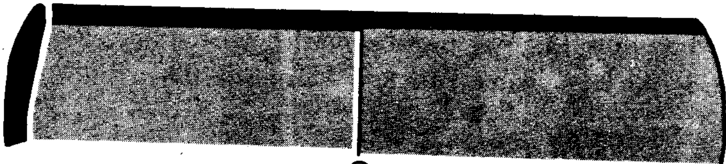
Figure 65, Number 5: Graffito on a Rojdi A Sorath Harappan Fine Red Ware Rim of a Pot. Trench 46L, stratum 10.
Exterior: multiple engraved lines on top of the rim.

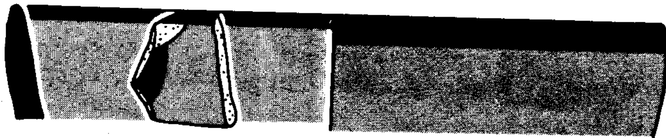
Figure 65, Number 6: Graffito on a Rojdi B Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 9.
Exterior: engraved cross hatched rectangular on the body surface of the vessel.

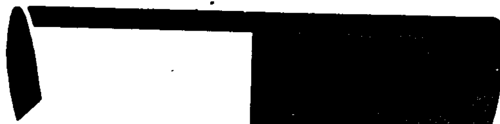












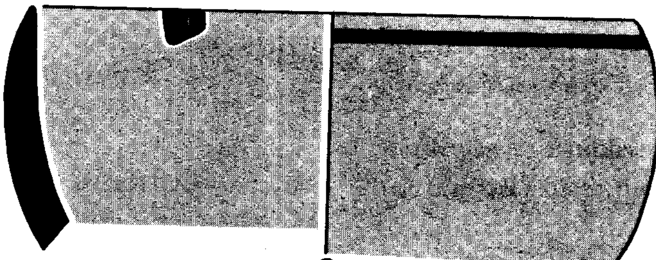




Fig. 62 Smooth Red Ware

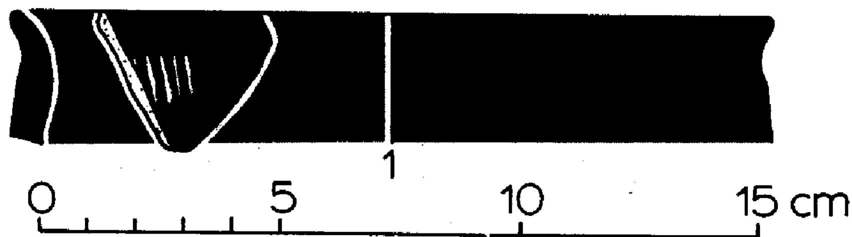
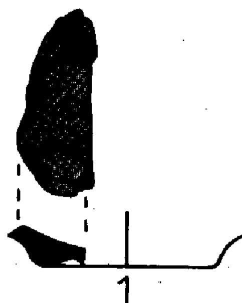
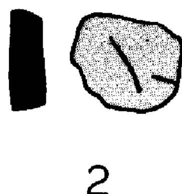
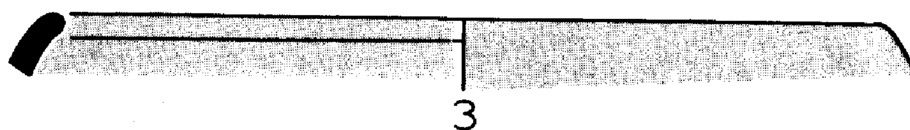


Fig. 63 Fine Black and Red Ware







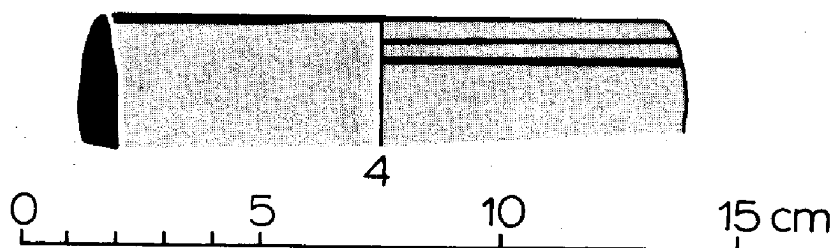


Fig. 64 Lustrous Red Ware

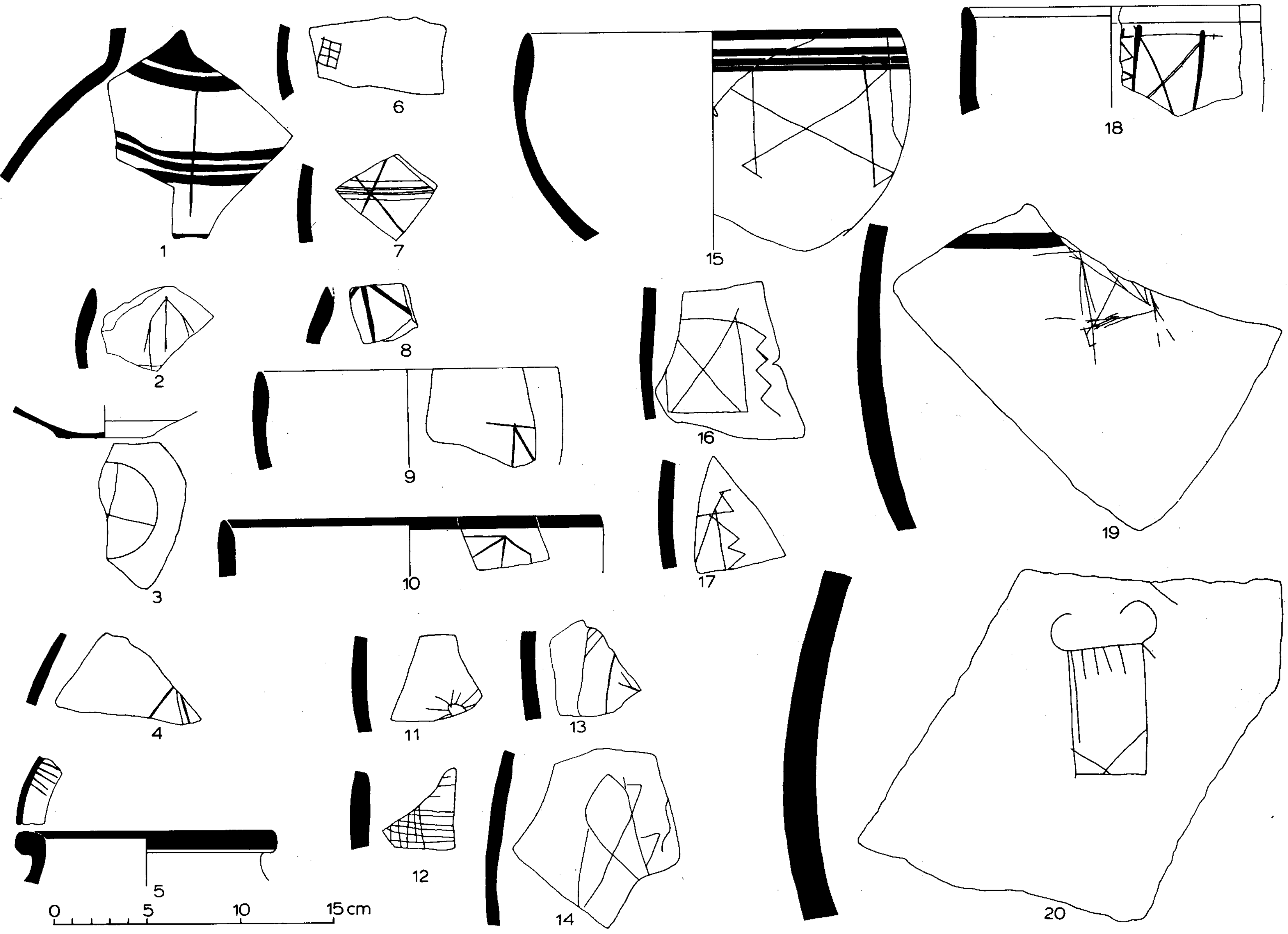


Fig. 65 Graffiti from Rojdi

Figure 65, Number 7: Graffito on a Rojdi B Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 9.

Exterior: fragment of an engraved "Andreus" cross (?) on a body surface of a vessel.

Figure 65, Number 8: Graffito on a Rojdi B Sorath Harappan Fine Buff Ware Body Sherd. Trench 46L, stratum 9.

Exterior: fragment of a deep incised graffito with three lines, on the body surface of the vessel.

Figure 65, Number 9: Graffito an a Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 6.

Exterior: fragment of a crossed rectangle (?) on the body surface on the bowl.

Figure 65, Number 10: Graffito on a Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 5.

Exterior: fragment of a graffito on the body surface of the bowl.

Figure 65, Number 11: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: engraved sun (?)-motif on the body of the vessel.

Figure 65, Number 12: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: engraved complex graffito of crossed parallel lines on the body surface of the vessel.

Figure 65, Number 13: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 2.

Exterior: engraved complex graffito on the body of the vessel.

Figure 65, Number 14: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: fragment of an engraved complex graffito on the body surface of the vessel.

Figure 65, Number 15: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 77G (South Extension), stratum 2.

Exterior: "endless knot"-graffito with four knots, shaped by triangles, on the body surface of the bowl.

Figure 65, Number 16: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: graffito, fragment on a crossed rectangle with a lateral zigzag line, on the body surface of the vessel.

Figure 65, Number 17: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: graffito fragment of a crossed rectangle with a lateral zigzag line, on the body surface of the vessel.

Figure 65, Number 18: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 46L, stratum 3.

Exterior: graffito fragment of a crossed rectangle with a lateral zigzag line, on the body surface of the vessel.

Figure 65, Number 19: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 3.

Exterior: graffito fragment of a crossed rectangle, on the body surface of the vessel.

Figure 65, Number 20: Graffito on a Rojdi C Sorath Harappan Fine Red Ware Body Sherd. Trench 46L, stratum 4.

Exterior: graffito with the "bucranium"-motif on the body surface of a big storage pot/jar.

The Ceramic Stratigraphy of Trench 76N

The deep sounding in trench 76N on the South Extension produced ceramics from all three pottery phases. These materials have been analyzed in a preliminary way. Figures 66, 67 and 68 show the developmental sequence from Rojdi A to Rojdi C for this part of the site. The trends seen in 76N in terms of changing vessel forms and fabrics are paralleled on the Main Mound in trench 46L.

Figure 66: Rojdi a Ceramics from Trench 76N

Figure 66, Number 1: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 7.

Figure 66, Number 2: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 7.

Figure 66, Number 3: Rojdi A Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 7.

Figure 66, Number 4: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 7.

Figure 66, Number 5: Rojdi A Sorath Harappan Stand of a Dish-on-Stand. Trench 76N, stratum 7.

Figure 66, Number 6: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 7.

Figure 66, Number 7: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 7.

Figure 66, Number 8: Rojdi A Sorath Harappan Fine Red Ware Basin. Trench 76N, stratum 7.

Figure 66, Number 9: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 7.

Figure 66, Number 10: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 7.

Figure 66, Number 11: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 7.

Figure 66, Number 12: Rojdi A Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 9.

Figure 66, Number 13: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 9.

Figure 66, Number 14: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 9.

Figure 66, Number 15: Rojdi A Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 8.

Figure 66, Number 16: Rojdi A Sorath Harappan Fine Buff Ware Dish. Trench 76N, stratum 8.

Figure 66, Number 17: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 76N, stratum 8.

Figure 66, Number 18: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 76N, stratum 8.

Figure 66, Number 19: Rojdi A Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 76N, stratum 8.

Figure 67, Rojdi B Ceramics from Trench 76N

Figure 67, Number 1: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 6.

Figure 67, Number 2: Rojdi B Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 6.

Figure 67, Number 3: Smooth Red Ware Bowl. Trench 76N, stratum 6, Rojdi B.

Figure 67, Number 4: Rojdi B Sorath Harappan Fine Buff Ware Bowl. Trench 76N, stratum 6.

Figure 67, Number 5: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 6.

Figure 67, Number 6: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 6.

Figure 67, Number 7: Rojdi B Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 6.

Figure 67, Number 8: Rojdi B Sorath Harappan Fine Buff Ware Stand of a Dish-on-Stand. Trench 76N, stratum 6.

Figure 67, Number 9: Rojdi B Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 76N, stratum 6.

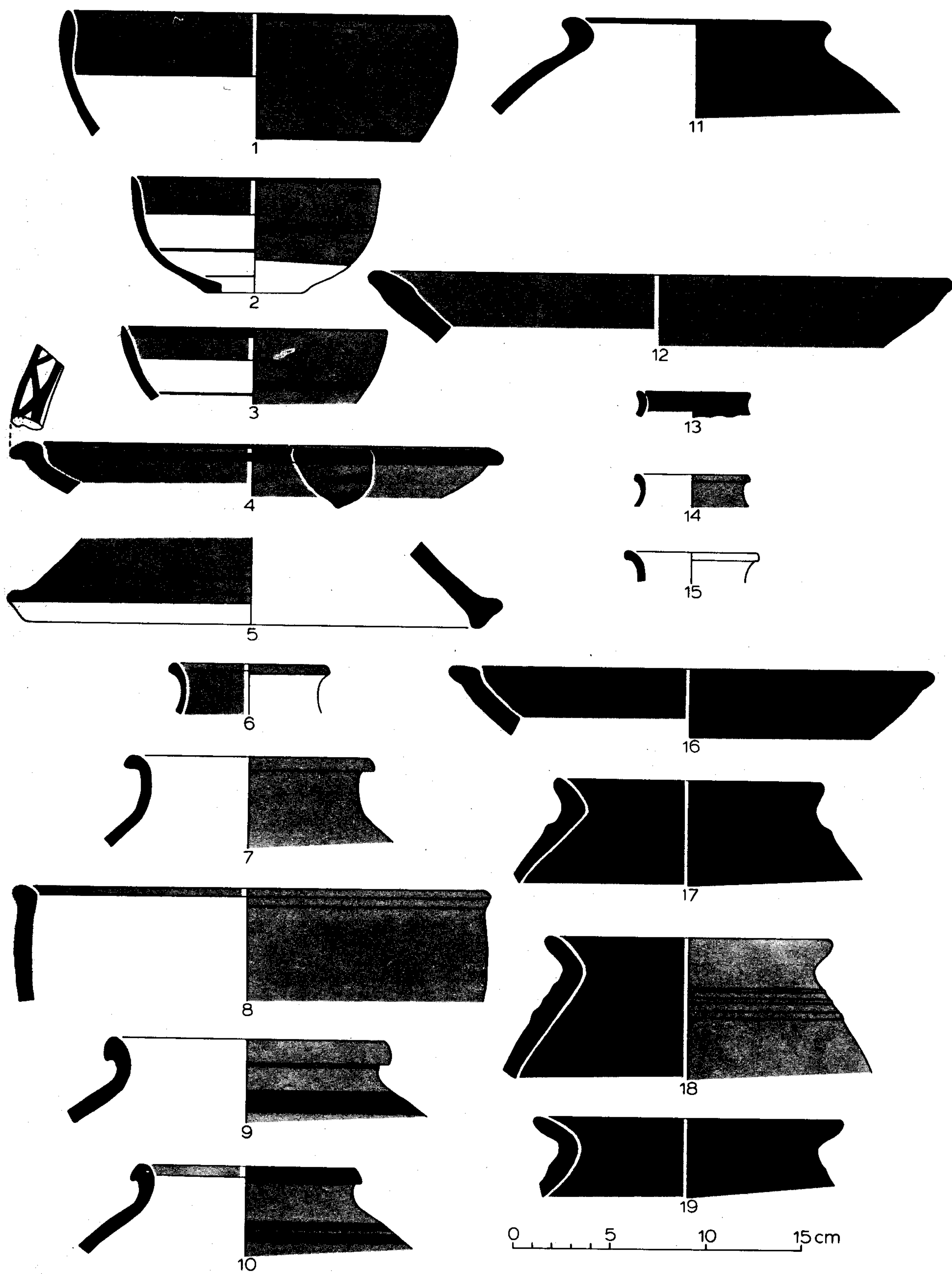


Fig. 66 Rojdi A Ceramics from Trench 76N

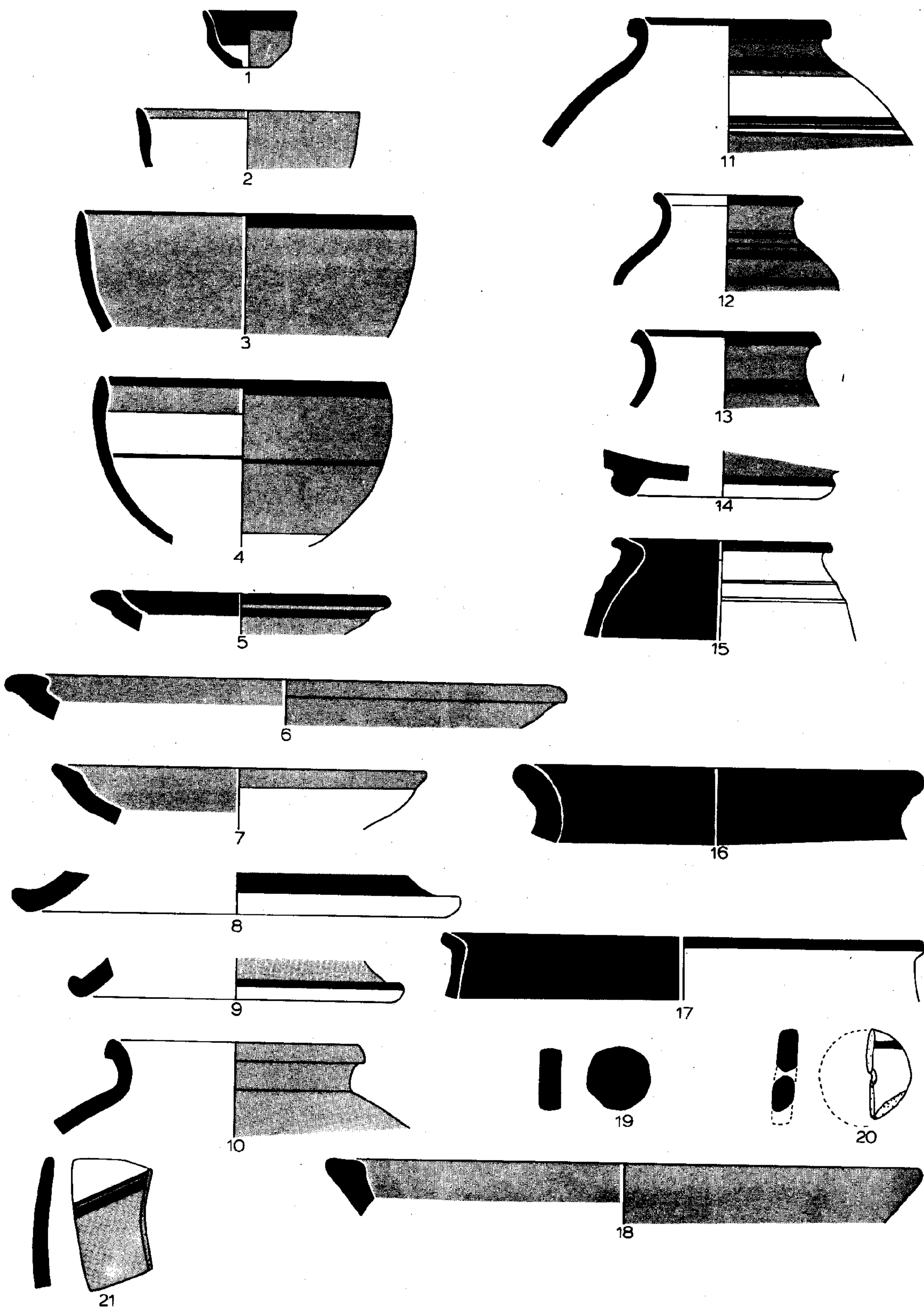


Fig. 67 Rojdi B Ceramics from Trench 76N

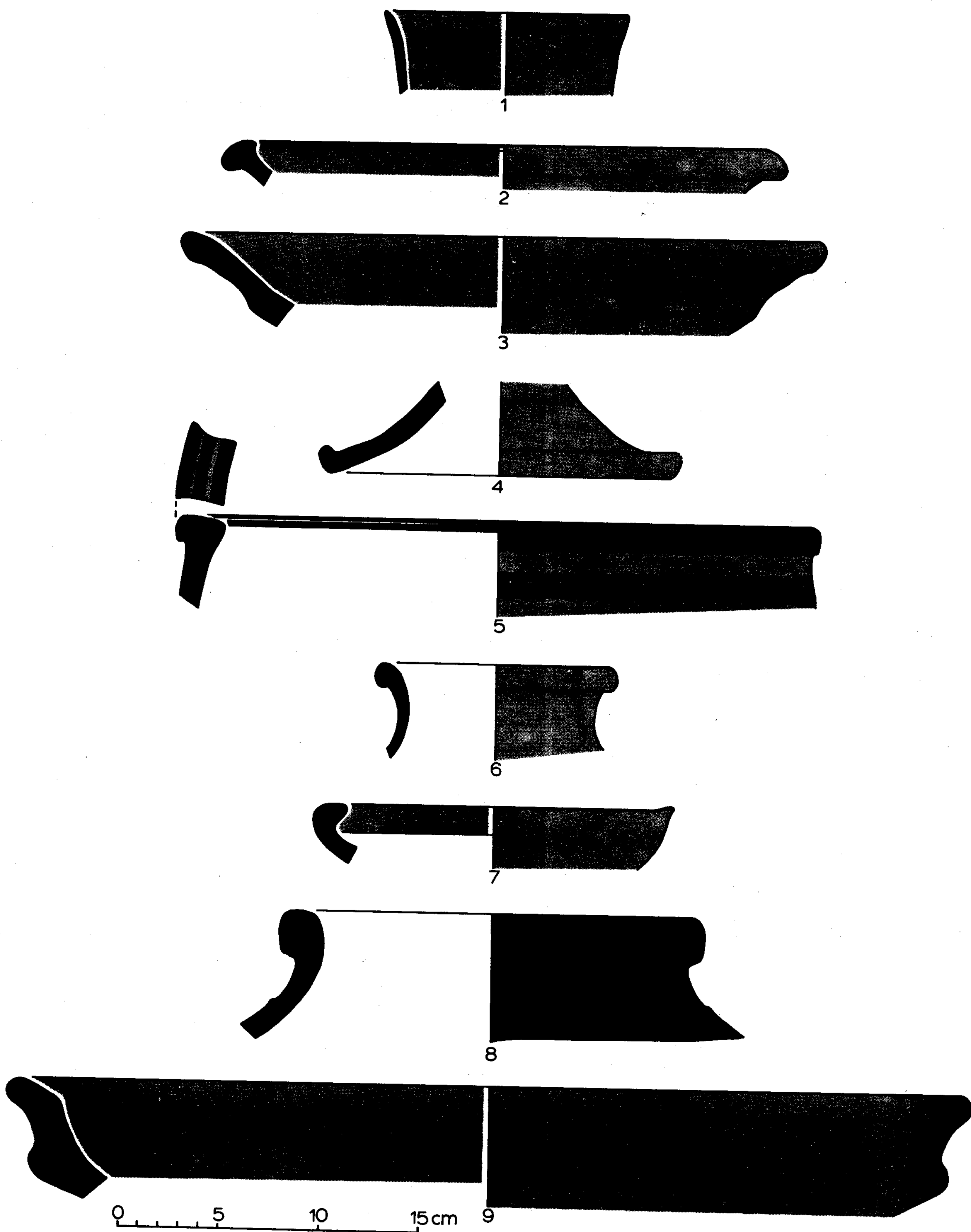
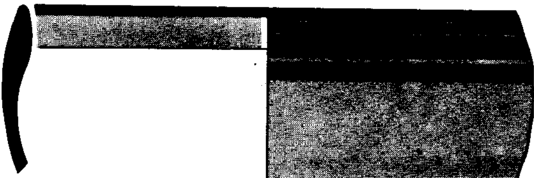
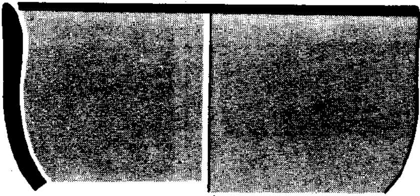
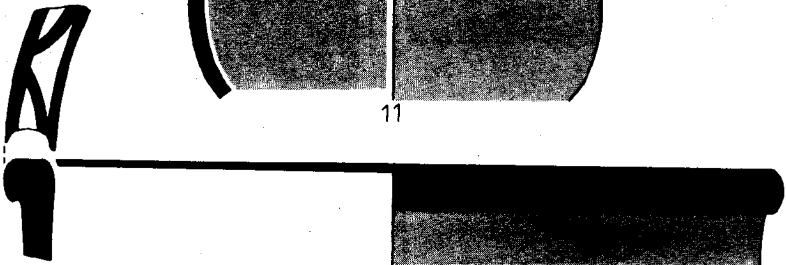
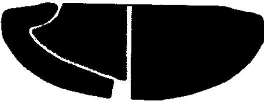


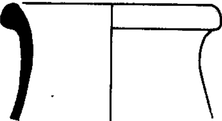
Fig. 68 Rojdi C Ceramics from Trench 76N



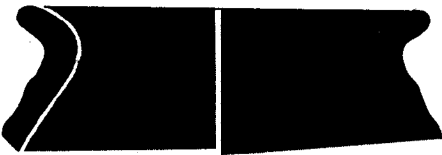












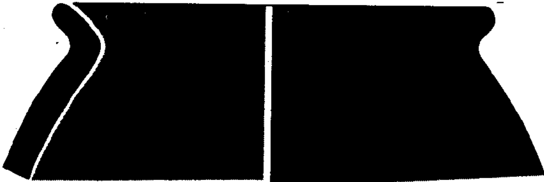




Fig. 68 (*Contd.*)

Figure 67, Number 10: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 11: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 12: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 13: Rojdi B Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 14: Rojdi B Sorath Harappan Fine Red Ware Base of a Pot. Trench 76N, stratum 6.

Figure 67, Number 15: Rojdi B Sorath Harappan Coarse Black-and-Red Ware Jar. Trench 76N, stratum 6.

Figure 67, Number 16: Rojdi B Sorath Harappan Coarse Grey Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 17: Rojdi B Sorath Harappan Coarse Grey Ware Pot. Trench 76N, stratum 6.

Figure 67, Number 18: Rojdi B Sorath Harappan Coarse Red Ware Dish. Trench 76N, stratum 6.

Figure 67, Number 19: Rojdi B Sorath Harappan Coarse Red Ware Unperforated Dish. Trench 76N, stratum 6.

Figure 67, Number 20: Rojdi B Sorath Harappan Fine Buff Ware Perforated Dish. Trench 76N, stratum 6.

Figure 67, Number 21: Rojdi B Sorath Harappan Fine Red Ware Shaped Sherd. Trench 76N, stratum 6.

Figure 68: Rojdi C Ceramics from Trench 76N

Figure 68, Number 1: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 2.

Figure 68, Number 2: Rojdi C Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 2.

Figure 68, Number 3: Rojdi C Sorath Harappan Fine Red Ware Dish. Trench 76N, stratum 2.

Figure 68, Number 4: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 76N, stratum 2.

Figure 68, Number 5: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 76N, stratum 2.

Figure 68, Number 6: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 2.

Figure 68, Number 7: Rojdi C Sorath Harappan Fine Buff Ware Lamp. Trench 76N, stratum 2.

Figure 68, Number 8: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 76N, stratum 5.

Figure 68, Number 9: Rojdi C Sorath Harappan Coarse Red Ware Dish. Trench 76N, stratum 5.

Figure 68, Number 10: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 5.

Figure 68, Number 11: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 76N, stratum 5

Figure 68, Number 12: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 76N, stratum 5.

Figure 68, Number 13: Rojdi C Sorath Harappan Fine Red Ware Lamp. Trench 76N, stratum 5.

Figure 68, Number 14: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 76N, stratum 5.

Figure 68, Number 15: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 76N, stratum 5.

Figure 68, Number 16: Rojdi C Sorath Harappan Coarse Black-and-Red Ware Pot. Trench 76N, stratum 5.

Figure 68, Number 17: Rojdi C Sorath Harappan Coarse Red Ware Jar. Trench 76N, stratum 5.

The Rojdi Ceramic Stratigraphy

Table 7 is an attempt to establish some stratigraphic correlations for Rojdi, especially between trenches 46L and 76N and the Rangpur sequence.

TABLE 7
Preliminary Ceramic Periods on the Main Mound and South Extension with a Comparison to Rangpur

MAIN MOUND TRENCH 46L	SOUTH EXTENSION TRENCH 76N	ROJDI POTTERY	RANGPUR POTTERY CORRELATION
(1) mixed strata (3)	— — — — — —	Historical Rojdi D	
(1) mixed strata (1) to (3) (4)	(1) (5)	Post-Urban Harappan Rojdi C	RGP II C
(5) (9)	(6)	Transitional Urban/ Post-Urban Harappan Rojdi B	RGP II A/B
(10) (16)	(7) (9)	Urban Harappan Rojdi A2	RGP II A
(17) (24)	(9)?	Urban Harappan Rojdi A1	RGP II A

The Main Mound Building Subphase 2b and the South Extension Building Subphases 2a and 2b: Correlation of Stratigraphy

Stratigraphic analysis of the Main Mound trenches leads to the conclusion that architectural Subphase 2b, the "Large Building", cuts into stratum five of trench 46L. This stratum five is the last phase of Rojdi B in this trench. We therefore associate the construction of this "Large Building" of architectural Subphase 2b on the Main Mound with the opening of Rojdi C.

Rojdi C ceramics are found in the first five strata of trench 76N. The ceramic similarities between the upper strata of 46L and 76N are such that there can be little doubt that the structures on the South Extension, associated with strata one and two (building Subphases 2a and 2b) were built at approximately the same time as the Large Building in Architectural Subphase 2b on the Main Mound.

We have already indicated that strata three (a thin, sterile "clay surface") through five of the South Extension, including trench 76N, are found below building Subphases 2a and 2b there. Strata three through five are, however, still associated with Rojdi C ceramics. Thus, we are led to conclude in a preliminary way that all of the building activity on the South Extension, Phases 1 and 2, are Rojdi C in date.

Since there are no signs of an occupational break on either the Main Mound or the South Extension we can assume that the transition between Rojdi B and C was a smooth one within the Rojdi context. The change in investment at the site is, however, quite extraordinary. The expansion of the South Extension, largely coincident with major new construction on the Main Mound, suggests a period of great activity and "prosperity".

The Large Square Building, Gateway and Circumvallation: Chronological Correlation

The ceramics from the Large Square Building, Gateway and the trenches connecting the Large Square Building to the Main Mound have been examined. The material from the Large Square Building is basically Rojdi C pottery. The vessel shapes, including S-shaped bowls, Fine and Coarse Ware dishes and high necked pots all support this. The Fine Ware storage pots (Figures 69-74) recovered from inside the Large Square Building are also Rojdi C types. Similar storage vessels have been found in this context in the upper layers of the South Extension and the Main Mound. A Fine Red Ware storage pot from the Large Square Building has a typical Rojdi C design on the shoulder: a rectangle with two hatched triangles pointing to each other, combined with wavy lines (Figure 71).

Figure 69: Fine Ware Storage Pots from the Large Square Building

Figure 69, Number 1: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 21U, stratum 1, Rojdi C.

Figure 69, Number 2: Rojdi C Sorath Harappan Fine Red Ware. Trench 21U, stratum 1, Rojdi C.

Figure 70: A Painted Fine Ware Storage Pot from the Large Square Building

Rojdi C Sorath Harappan Fine Buff Ware Storage Pot with a geometric freeze on shoulder. Trench 21U, stratum 1, Rojdi C.
Exterior: very grayish dark brown (10 YR 3/2) broad painted horizontal band on the rim, and multiple painted horizontal bands ranging from black (10 YR 2/1) to very grayish dark brown (10 YR 3/2) to light brownish gray (10 YR 6/2) on shoulder, body and base parts of the vessel. A light red (10 R 6/6) to reddish brown (2.5 YR 6/4) slip is applied to the neck and body parts of the vessel. The base is kept unslipped white (2.5 Y 8/2). The two colored slipped and unslipped surfaces, combined with the painted bands are the components of a "slipped-cum-unslipped" surface treatment with "polychrome effect". The freeze consists of 'triple standing loops', 'loop with dot', and 'dots', as "complex designs" painted on a pale yellow (2.5 Y 7/4) slipped horizontal band.
Interior: light yellow brown (2.5 Y 6/4) unslipped surface.

Figure 71: A Painted Fine Ware Storage Pot from the Large Square Building

Rojdi C Sorath Harappan Fine Buff Ware Storage Pot with figurative depictions of "bulls" and plants on a shoulder freeze. Trench 21U, stratum 1, Rojdi C.
Exterior: Very pale brown (10 YR 7/3) slipped horizontal band on the shoulder, between light brown (7.5 YR 6/4) slipped surfaces of neck and body; multiple dark brown (7.5 YR 3/2) painted horizontal bands on rim, shoulder and body (the two different slips combined with the paintings are the components of a decoration with "bichrome effect"). The freeze consists of 'three bulls (?) in a row' between two stylized 'flowering plant' motifs.
Interior: very pale brown (10 YR 7/3) unslipped surface.

Figure 72: A Painted Fine Ware Storage Pot from the Large Square Building

Rojdi C Sorath Harappan Fine Red Ware Pot with a complex geometric design on the shoulder and a graffito on the body. Trench 21U, stratum 1, Rojdi C.
Exterior: reddish brown (2.5 YR 6/4) slip on the neck, light yellow brown (2.5 Y 6/4) unslipped horizontal band on the shoulder, light red (10 R 6/6) slip on the body, and reddish brown (2.5 YR 6/4) unslipped base; multiple painted horizontal bands ranging in color from reddish gray (5 YR 5/2) to very dusky red (10 YR 3/4); ("slipped-cum-unslipped" surface treatment with "bichrome effect"). The freeze has a reddish gray (5 YR 5/2) complex geometric painted design composed by

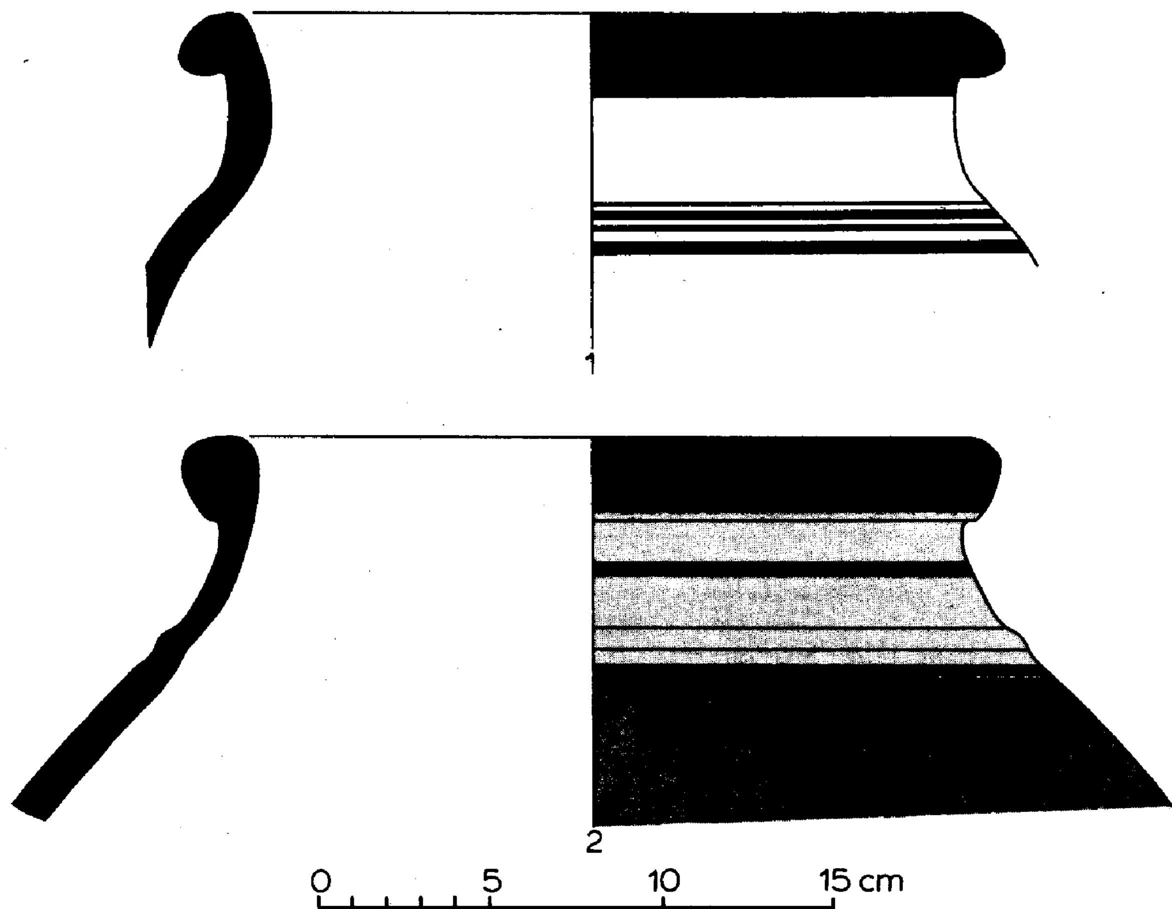


Fig. 69 Fine Ware Storage Pots from the Large Square Building

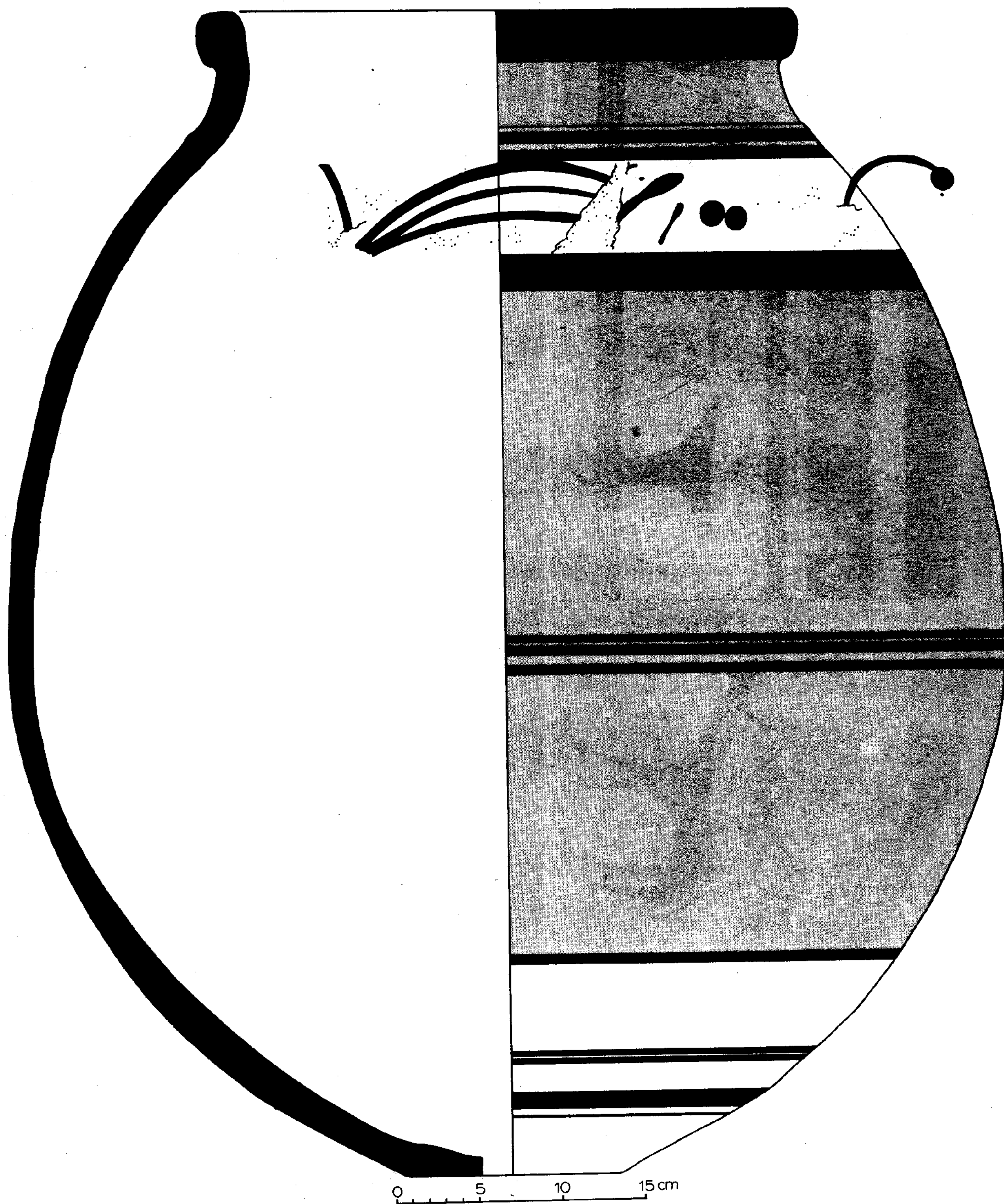


Fig. 70 Fine Ware Storage Pots from the Large Square Building

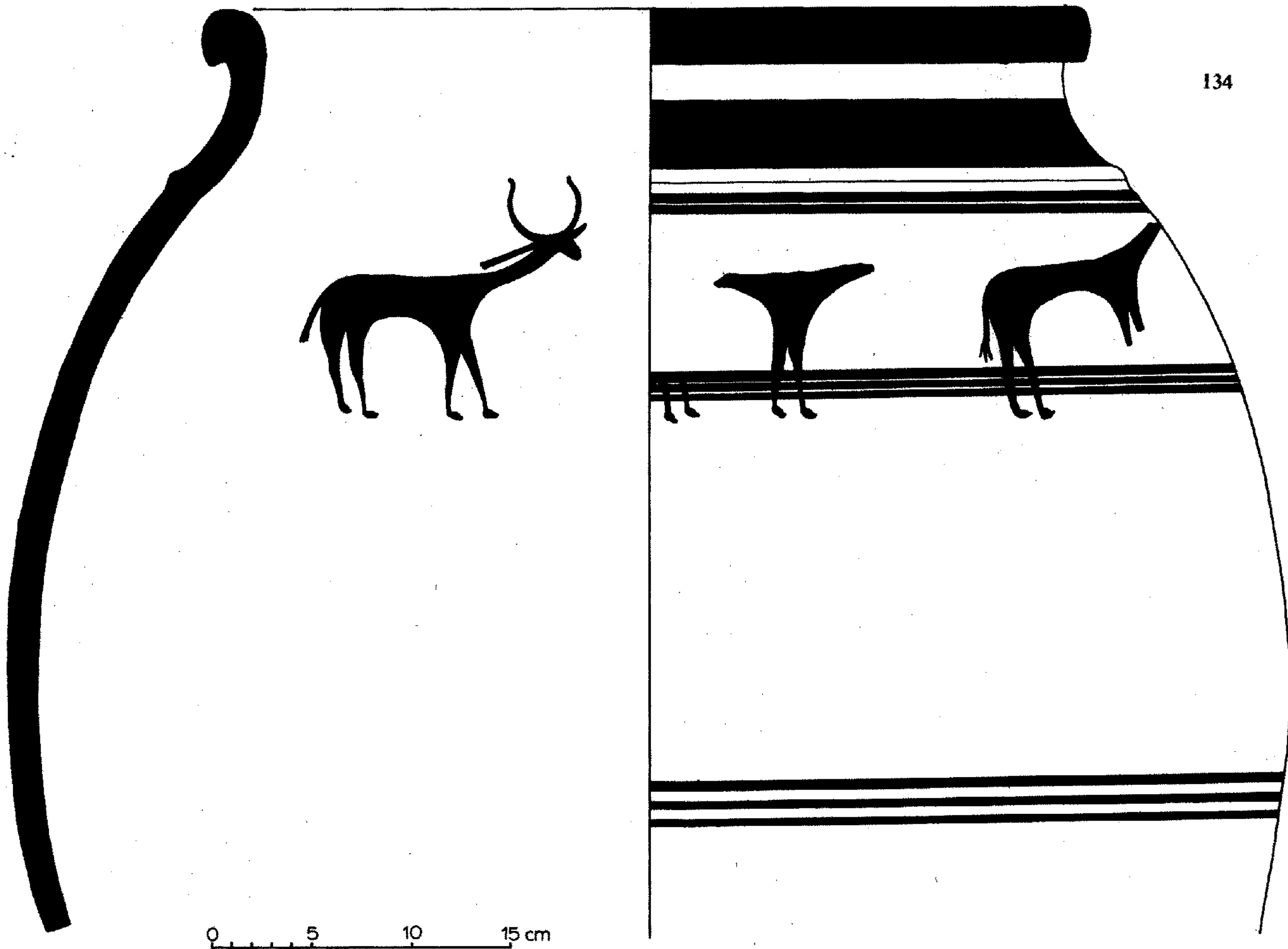


Fig. 71 A Painted Fine Ware Storage Pot from the Large Square Building

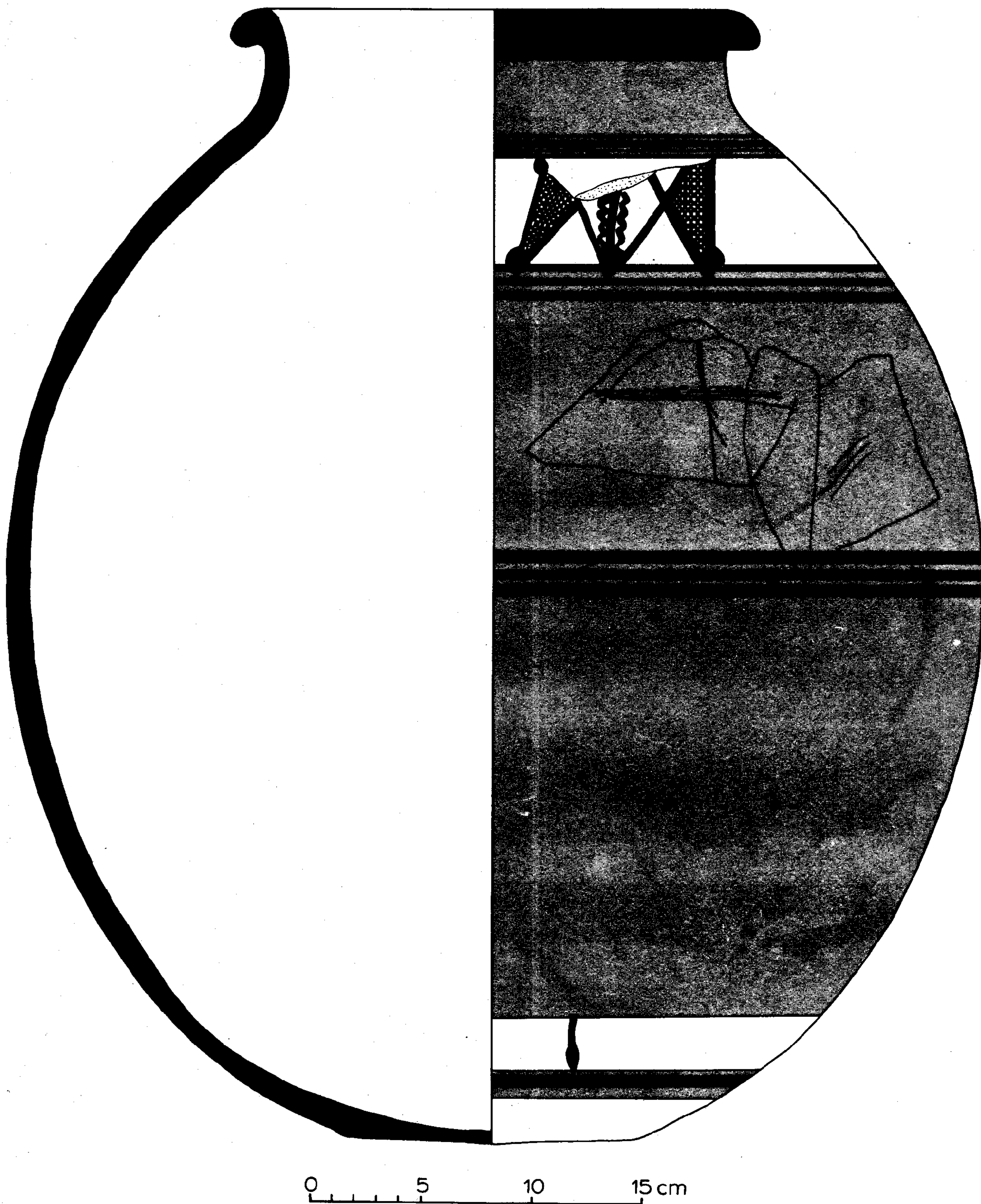


Fig. 72 A Painted Fine Ware Storage Pot from the Large Square Building

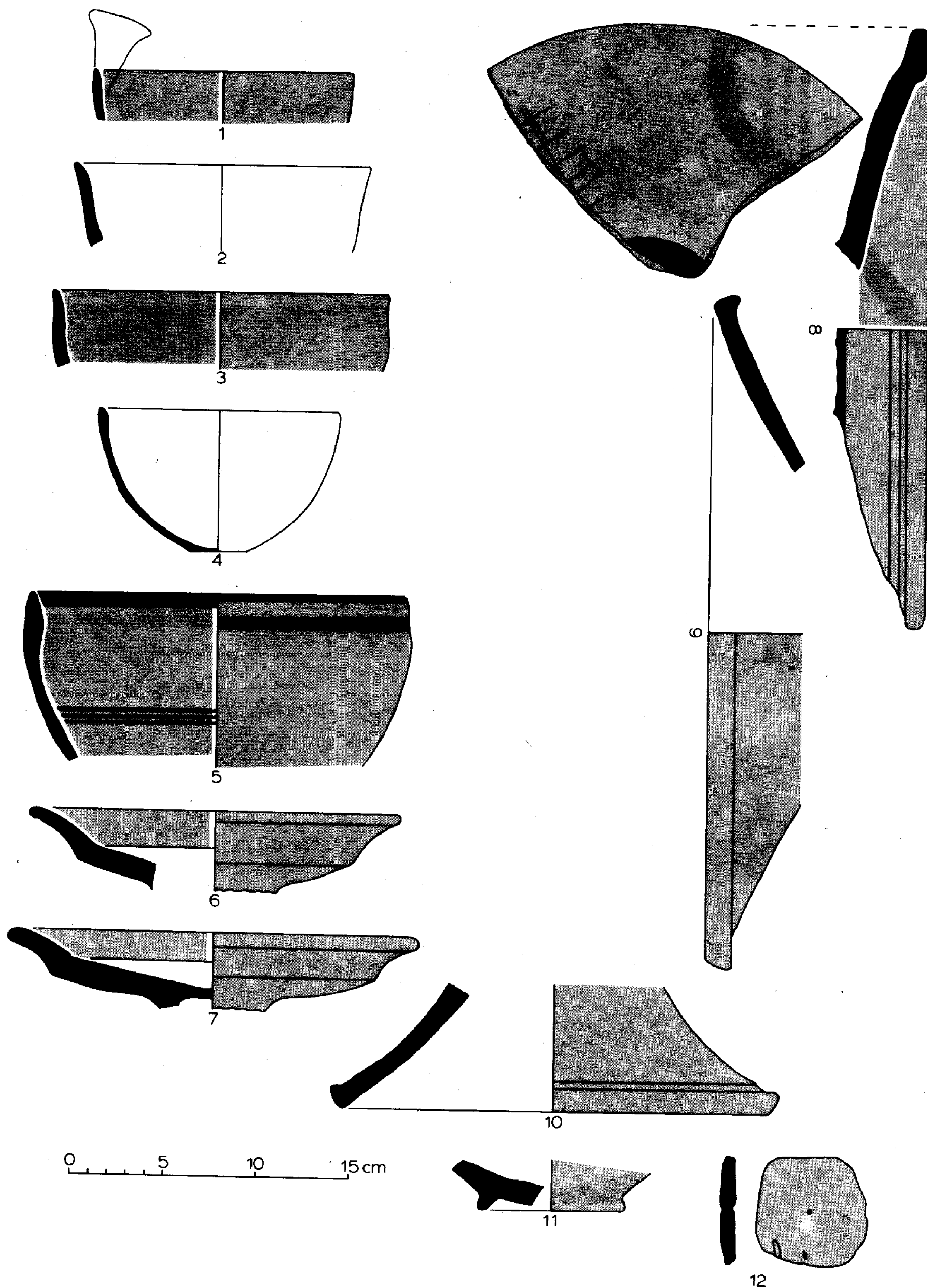


Fig. 73 Selected Ceramics from the Large Square Building

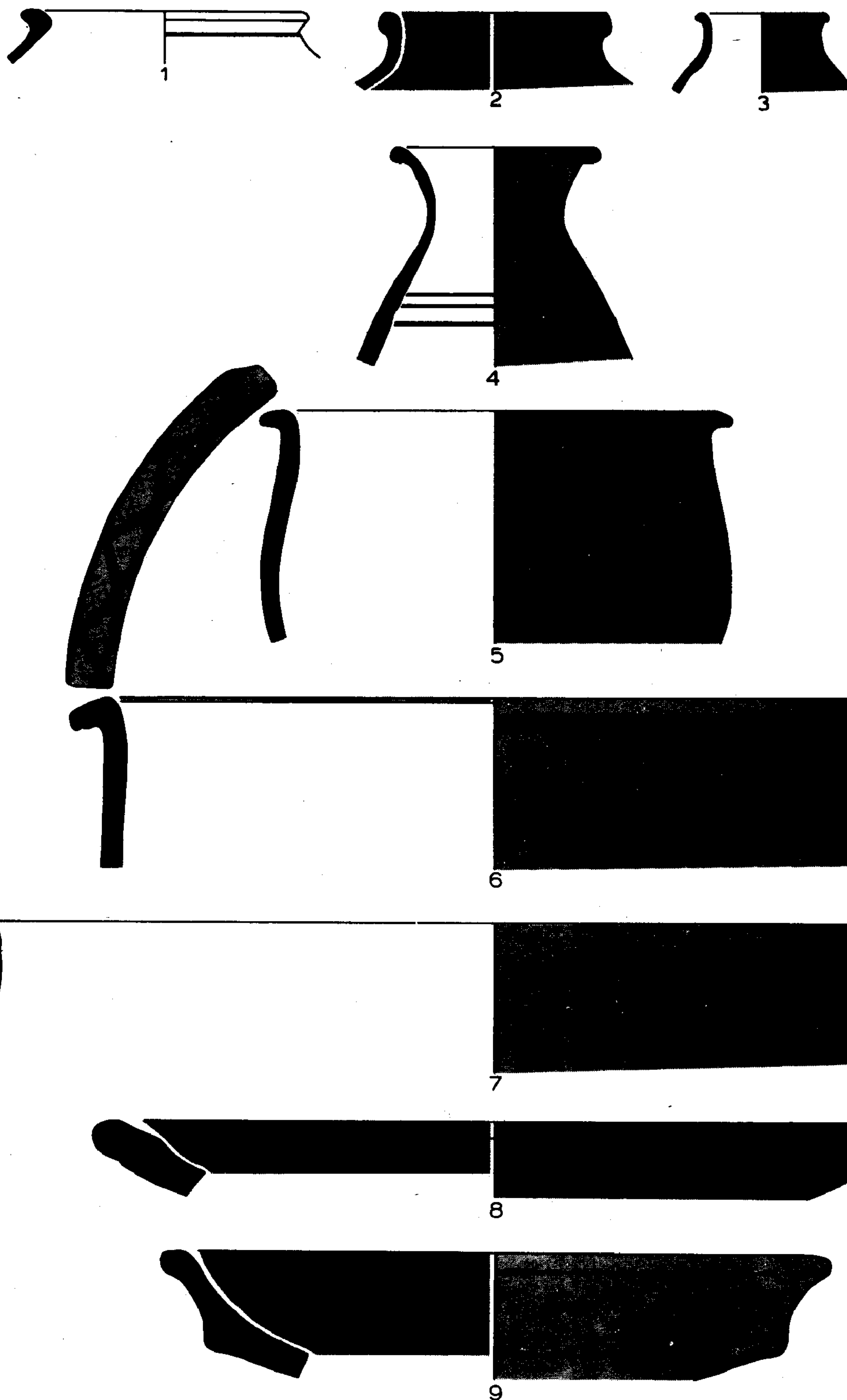


Fig. 74 Selected Ceramics from the Large Square Building

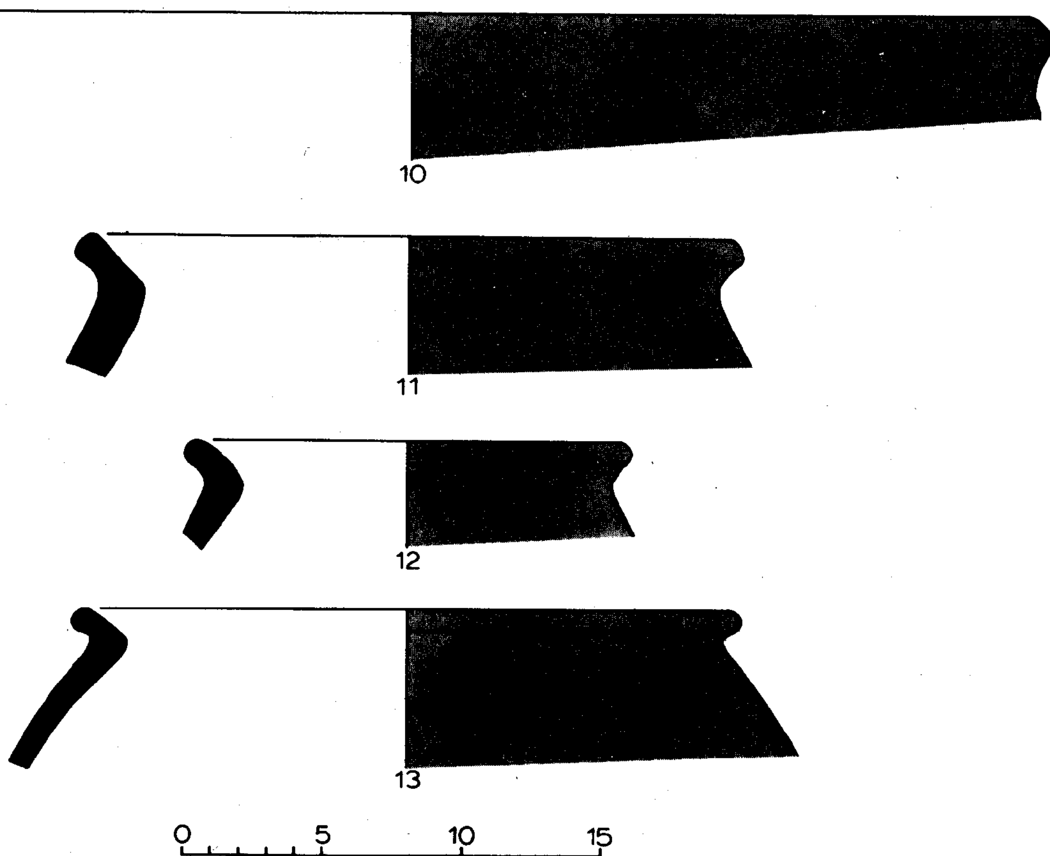


Fig. 74 (*Contd.*)

dots, crossing lines, net crossed and wavy lines. A fragment of an engraved graffito, and pawn imprints of a squirrel (?) occur on the body surface of the vessel.
Interior: light yellow brown (2.5 Y 6/4) unslipped surface.

Figure 73: Selected Ceramics from the Large Square Building

Figure 73, Number 1: Rojdi C Sorath Harappan Fine Red Ware Stud-handled Bowl. Trench 21U, stratum 1.

Figure 73, Number 2: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 21U, stratum 1.

Figure 73, Number 3: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 21U, stratum 1.

Figure 73, Number 4: Rojdi C Sorath Harappan Fine Buff Ware Bowl. Trench 21U, stratum 1.

Figure 73, Number 5: Rojdi C Sorath Harappan Fine Red Ware Bowl. Trench 21U, stratum 1.

Figure 73, Number 6: Rojdi C Sorath Harappan Fine Red Ware Dish of a Dish-on-Stand. Trench 21U, stratum 1.

Figure 73, Number 7: Rojdi C Sorath Harappan Fine Red Ware Dish of a Dish-on-Stand. Trench 21U, stratum 1.

Figure 73, Number 8: Rojdi C Sorath Harappan Fine Red Ware Dish of a Dish-on-Stand with a Graffito on the Exterior Surface. Trench 21U, stratum 1.

Figure 73, Number 9: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 21U, stratum 1.

Figure 73, Number 10: Rojdi C Sorath Harappan Fine Red Ware Stand of a Dish-on-Stand. Trench 21U, stratum 1.

Figure 73, Number 11: Rojdi C Sorath Harappan Fine Red Ware Ring Base of a Vessel. Trench 21U, stratum 1.

Figure 73, Number 12: Rojdi C Sorath Harappan Fine Red Ware Disk with Traces of Perforation. Trench 21U, stratum 1.

Figure 74:Selected Ceramics from the Large Square Building

Figure 74, Number 1: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 2: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 3: Rojdi C Sorath Harappan Fine Buff Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 4: Rojdi C Sorath Harappan Fine Red Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 5: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 21U, stratum 1.

Figure 74, Number 6: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 21U, stratum 1.

Figure 74, Number 7: Rojdi C Sorath Harappan Fine Red Ware Basin. Trench 21U, stratum 1.

Figure 74, Number 8: Rojdi C Sorath Harappan Coarse Red Ware Dish. Trench 21U, stratum 1.

Figure 74, Number 9: Rojdi C Sorath Harappan Coarse Black-and-Red Ware Dish. Trench 21U, stratum 1.

Figure 74, Number 10: Rojdi C Sorath Harappan Coarse Red Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 11: Rojdi C Sorath Harappan Coarse Red Ware Pot. Trench 21U, stratum 1.

Figure 74, Number 12: Rojdi C Sorath Harappan Coarse Red Ware Jar with Incised Rim. Trench 21U, stratum 1.

Figure 74, Number 13: Rojdi C Sorath Harappan Coarse Red Ware Jar. Trench 21U, stratum 1.

The pottery from the Gateway and the trenches connecting the Circumvallation and the Large Square Building (Plate 16) is also Rojdi C. A few examples from these latter contexts might be

slightly earlier (late Rojdi B), but material from these locales is all from strata very close to the surface and is quite weathered.

We can tentatively conclude from this that the Large Square Building, Gateway and Circumvallation were all built very close to one another in time and date to Rojdi C, possibly the early part of this period.

The ceramic analysis of the material taken from the interior of the Large Square Building supports the notion that this was a pottery dump of Rojdi C times.

It should be noted that only a few storage jars were found in the Large Square Building, although the first impression was that there were many. This impression was created by the very large size of the sherds. While many of the pieces were scattered and redeposited after the vessels were broken, a number of very good joins were made with adjacent sherds. Thus, we cannot completely rule-out the possibility that these large storage pots were associated with the building.

The Trenches between the Large Square Building and the Main Mound

A series of trenches connect the Large Square Building and the Main Mound (Figure 8). The pottery from these cuts is early, Rojdi A and B in date, supporting the relative chronology for the Large Square Building.

Summary and Tables of the Ceramics from Trenches 46L and 76N

This preliminary correlation of the pottery sequence has been generated principally from trench 46L, and then compared to 76N. The correlation of the upper levels of both trenches is very clear. The pottery fabrics, forms, decorations, and statistics show that strata one through five of 76N are equal to two through four found in 46L. Stratum six in 76N is equivalent to stratum five in 46L. Some problems arise with the lower levels of 76N when the distribution patterns of ceramic variables in this trench are not especially clear. Most of the vessel forms are early, convex sided bowls, neckless pots with flaring rims. But, some suggest an equation with Rojdi B (for example the Coarse Red Ware dish). On the other hand, the high percentage of "slip decorated" bowls calls for a Rojdi A correlation. As can be seen in Table 8, the frequency of slip decoration on bowls is one of the important time markers.

Tables 8 through 34 have been prepared to summarize some of the detailed data that has emerged from the analysis of trenches 46L and 76N.

The abbreviations used in the tables are as follows:

RJD	: Rojdi pottery phase	FR	: Sorath Harappan Fine Red Ware
STRAT	: Stratum	FB	: Sorath Harappan Fine Buff Ware
SB	: Stud-handled Bowl	FG	: Sorath Harappan Fine Grey Ware
B	: Bowl	CB1&R:	: Sorath Harappan Coarse Black-and-Red Ware
J	: Jar		
Bs	: Basin	CR	: Sorath Harappan Coarse Red Ware
Po	: Pot	CG	: Sorath Harappan Coarse Grey Ware
Bo	: Bottle	Perf. Disk	: Perforated Disk
D	: Dish	Unperf. Disk	: Unperforated Disk
DoS	: Dish-on-Stand		
La	: Lamp		
JS	: Jar Stand		
Ld	: Lid		
?	: Unknown vessel form		
Fine W.	: Fine Ware		
Coarse W.	: Coarse Ware		

TABLE 8

Distribution of Sorath Harappan Fine Red, Fine Buff and Fine Grey Bowls with "Slipped-cum-unslipped" or Unslipped Interior Surface: A Comparison between the Rojdi Main Mound (Trench 46L) and the South Extension (Trench 76N).

ROJDI MAIN MOUND : TRENCH 46L

Phase	Strat	# Bowl rims with Sl/unsl. or unsl. surface treatment	# of bowl rims	% per Strat	% per RJD pottery phase
	(1)	1	26	4	
	(2)	6	102	6	
C	(3)	9	124	7	7
	(4)	21	311	7	
	(5)	15	115	13	
	(6)	7	35	20	
B	(7)	-	-	0	19
	(8)	14	51	27	
	(9)	14	58	24	
	(10)	14	26	54	
	(11)	3	10	30	
	(12)	16	24	67	
	(13)	26	63	41	
	(14)	3	6	50	
	(15)	-	1	0	
	(16)	8	15	53	
A					48
	(17)	-	1	0	
	(18)	12	20	60	
	(19)	2	7	29	
	(20)	6	12	50	
	(21)	-	-	-	
	(22)	1	4	25	
	(23)	4	7	57	
	(24)	-	1	0	

ROJDI SOUTH EXTENSION : TRENCH 76N

Phase	Strat	# Bowl rims with Sl/unsl. or unsl. surface treatment	# of bowl rims	% per Strat	% per RJD pottery phase
	(1)	-	30	0	
	(2)	9	527	2	
C	(3)	-	-	0	
	(4)	17	282	6	4
	(5)	12	186	6	
B	(6)	34	187	18	18
	(7)	26	71	37	
A	(8)	2	16	13	33
	(9)	3	8	38	

TABLE 9

Distribution of Sorath Harappan Vessel Form in Trench 46L.

ROJDI MAIN MOUND : TRENCH 46L

of vessel rims

RJD	# rim sherds	Strat	Sorath Harappan fine wares vessel forms													Sorath Harappan coarse wares vessel forms												
			SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	Tot	SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	Tot
	40	(1)	-	26	2	-	9	-	1	-	-	-	-	-:	39	-	-	1	-	-	-	-	-	-	-	-	-:	1
	165	(2)	2	102	-	1	41	1	2	-	-	-	-	2:	151	-	-	3	-	5	-	1	-	-	-	-	5:	14
C	248	(3)	-	124	4	5	69	-	9	3	4	-	-	1:	219	-	-	2	-	17	-	1	-	-	-	-	9:	29
	613	(4)	1	311	10	12	131	1	19	2	10	-	-	4:	501	-	-	23	7	39	-	13	-	-	-	-	30:	112
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-:	-	-	-	-	-	-	-	-	-	-	-	-	-:	- -
	232	(5)	1	115	2	4	40	-	3	5	-	-	-	5:	175	-	-	12	1	26	-	2	-	-	-	-	16:	57
	50	(6)	-	35	-	-	6	-	2	-	-	-	-	-:	43	-	-	3	-	3	-	-	-	-	-	-	1:	7
B	-	(7)	-	-	-	-	-	-	-	-	-	-	-	-:	-	-	-	-	-	-	-	-	-	-	-	-	-:	-
	103	(8)	-	51	-	2	21	-	4	6	-	-	-	-:	84	-	-	1	2	8	-	6	-	-	-	-	2:	19
	105	(9)	-	58	1	2	19	-	3	-	-	-	-	-:	83	-	1	5	-	9	-	-	-	-	-	-	7:	22
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-:	-	-	-	-	-	-	-	-	-	-	-	-	-:	- -
	40	(10)	-	26	-	-	5	-	1	-	-	-	-	-:	32	-	-	-	-	6	-	-	-	-	-	-	2:	8
	22	(11)	-	10	-	-	5	-	-	-	-	-	-	1:	16	-	-	1	-	3	-	-	-	-	-	-	2:	6
	33	(12)	-	24	-	-	5	-	-	-	-	-	-	-:	29	-	-	2	-	2	-	-	-	-	-	-	-:	4
	108	(13)	-	63	2	-	8	-	3	-	-	-	-	-:	76	-	2	2	1	20	-	-	-	-	-	-	7:	32
	11	(14)	-	6	-	-	-	-	-	-	-	-	-	-:	6	-	-	-	1	2	-	-	-	-	-	-	2:	5
	2	(15)	-	1	-	-	-	-	-	-	-	-	-	-:	1	-	-	-	-	1	-	-	-	-	-	-	-:	1
	33	(16)	-	15	-	1	7	-	1	-	-	-	-	-:	24	-	-	1	-	5	-	-	-	-	-	-	3:	9
A														:													:	
	4	(17)	-	1	-	-	-	-	-	-	-	-	-	1:	2	-	-	-	-	2	-	-	-	-	-	-	-:	2
	30	(18)	-	20	-	-	2	-	1	-	-	-	-	-:	23	-	-	-	1	6	-	-	-	-	-	-	-:	7
	13	(19)	-	7	1	-	2	-	-	-	-	-	-	1:	11	-	-	-	-	1	-	-	-	-	-	-	1:	2
	27	(20)	-	12	-	2	1	-	3	-	-	-	-	-:	18	-	1	2	-	3	-	-	-	-	-	-	3:	9
	-	(21)	-	-	-	-	-	-	-	-	-	-	-	-:	-	-	-	-	-	-	-	-	-	-	-	-	-:	-
	6	(22)	-	4	-	-	-	-	-	-	-	-	-	-:	4	-	-	-	-	-	-	-	-	-	-	-	2:	2
	20	(23)	-	7	-	-	5	-	3	-	-	-	-	-:	15	-	1	-	-	1	-	-	-	-	-	-	3:	5
	3	(24)	-	1	-	-	2	-	-	-	-	-	-	-:	3	-	-	-	-	-	-	-	-	-	-	-	-:	0
														:													:	

TABLE 10

Summary Percentage Distribution of Sorath Harappan Fine Ware Vessel Forms in Trench 46L of the Main Mound.

ROJDI MAIN MOUND:TRENCH 46L

RJD	#	#	%	Vessel rim percentages														
					Sorath Harappan fine wares vessel forms													
	rim sherds	Fine W rims	Fine W rims	Strat	SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	
C	1026	871	84.9	(2-4)	0.3	61.7	1.6	2.1	27.7	0.2	3.4	0.6	1.8	-	-	0.8	100.2%
B	490	385	78.6	(9-5)	0.3	67.3	0.8	2.1	22.3	-	3.1	2.9	-	-	-	1.3	100.1%
A	352	260	73.9	(24-10)	-	75.8	1.2	1.2	16.2	-	4.6	-	-	-	-	1.2	100.2%
A2	249	184	73.9	(16-10)	-	78.8	1.1	0.5	16.3	-	2.7	-	-	-	-	0.5	99.9%
A1	103	76	73.8	(24-17)	-	68.4	1.3	2.6	15.8	-	9.2	-	-	-	-	2.6	99.9%

TABLE 11

Summary Percentage Distribution of Sorath Harappan Coarse Ware Vessel Forms in Trench 46L of the Main Mound.

ROJDI MAIN MOUND:TRENCH 46L

RJD	#	#	%	Vessel rim percentages														
					Sorath Harappan fine wares vessel forms													
	rim sherds	Coarse W. rims	Coarse W. rims	Strat	SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	
C	1026	155	15.1	(2-4)	-	-	18.1	4.5	39.4	-	9.6	-	-	-	-	28.3	99.9%
B	490	105	21.4	(5-9)	-	1.0	20.0	2.9	43.8	-	7.6	-	-	-	-	24.8	100.1%
A	352	92	26.1	(10-24)	-	4.3	8.7	3.3	56.5	-	-		-	-	-	27.2	100.0%
A2	249	65	26.1	(10-16)	-	3.1	9.2	3.1	60.0	-	-	-	-	-	-	24.6	100.0%
A1	103	27	26.2	(17-24)	-	7.4	7.4	3.7	48.2	-	-	-	-	-	-	33.3	100.0%

TABLE 12

Distribution of Sorath Harappan Vessel Forms in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION: TRENCH 76N

of vessel rims

RJD	# rim sherds	Strat	Sorath Harappan fine wares vessel forms: SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?:	Tot	Sorath Harappan coarse wares vessel forms: SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	Tot
	72	(1)	-	30	-	2	23	-	-	-	-	-	-	14:	69	-	-	-	-	-	-	-	-	-	-	-	3:	3
	957	(2)	3	527	11	31	214	1	27	4	12	-	-	39:	869	-	-	10	2	40	-	9	-	-	-	-	27:	88
C	0	(3)	-	-	-	-	-	-	-	-	-	-	-	-:	0	-	-	-	-	-	-	-	-	-	-	-	-:	0
	489	(4)	3	291	7	13	80	-	17	9	1	-	-	17:	438	-	-	2	-	17	-	2	-	-	-	-	30:	51
	305	(5)	3	180	1	4	60	-	14	1	6	-	-	3:	272	-	-	2	1	17	-	3	-	-	-	-	10:	33
B	319	(6)	1	187	-	3	47	-	10	1	-	-	-	6:	255	-	-	2	-	40	-	2	-	-	-	-	20:	64
	132	(7)	-	71	2	1	24	-	1	2	-	-	-	-:	101	-	-	2	-	23	-	3	-	-	-	-	3:	31
A	52	(8)	-	17	-	-	6	3*	3	-	-	-	-	-:	29	-	-	5	-	6	-	-	-	-	-	-	12:	23
	14	(9)	-	7	-	-	3	-	2	-	-	-	-	-:	12	-	-	-	-	1	-	-	-	-	-	-	1:	2

* = 3 bottle rims from a pit lot, which may belong to Rjd Period B.

TABLE 13

Summary Percentage Distribution of Sorath Harappan Fine Ware Vessel Forms in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION: TRENCH 76N

Vessel rim percentages

RJD	# rim sherds	# Fine W rims	% Fine W rims	Strat.	Sorath Harappan fine ware vessel forms: SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	
C	1751	1579	90.2	(2–5)	0.6	63.2	1.2	3.0	22.4	0.1	3.7	0.9	1.2	-	-	3.7	100.0%
B	319	255	79.9	(6)	0.4	73.3	-	1.2	18.4	-	3.9	0.4	-	-	-	2.3	99.9%
A	198	142	71.7	(7–9)	-	66.9	1.4	0.7	23.2	2.1	4.2	1.4	-	-	-	-	99.0%

TABLE 14

Summary Percentage Distribution of Sorath Harappan Coarse Ware Vessel Forms in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION: TRENCH 76N

RJD	# rim sherds	# Coarse W. rims	% Coarse W. rims	Vessel rim percentages: Sorath Harappan fine ware vessel forms													
				Strat.	SB	B	J	Bs	Po	Bo	D	DoS	La	JS	Ld	?	
C	1751	172	9.8	(2-5)	-	-	8.1	1.7	43.0	-	8.1	-	-	-	-	39.0	99.9%
B	319	64	20.1	(6)	-	-	3.1	-	62.5	-	3.1	-	-	-	-	31.3	100.0%
A	198	56	28.3	(7-9)	-	-	12.5	-	53.6	-	5.4	-	-	-	-	28.6	100.1%

TABLE 15

Percentage Distribution of Sorath Harappan and Other Wares in Trench 46L of the Main Mound.

ROJDI MAIN MOUND :46L

RJD	# Total sherds	Strat.	Sherd percentages: % Sorath Harappan — Fine Wares: Fr	Fb	Fg	Coarse Wares: CB1&R	Cr	Cg	% Tot Sorath wares	% Chucky ware	% Other wares
	549	(1)	77	14.	-	1.	6	0.	99.3	0.0	0.7
	2032	(2)	69	14.	-	5	8.	*	97.3	2.2	0.3
C	2799	(3)	71	11	*	5	12	*	99.6	0.1	0.3
	6065	(4)	62	13	*	11	12	1	99.1	0.1	0.7
	2536	(5)	48	10	*	19	15	2	94.6	0.2	5.3
	554	(6)	56	12	*	23	7	1	99.1	0.7	0.2
B	-	(7)	-	-	-	-	-	-	0.0	0.0	0.0
	848	(8)	58.	11	-	23	6	0.	99.2	0.5	0.4
	1020	(9)	41	11.	-	32.	7.	3	95.4	3.5	1.1
	541	(10)	34.	16	0.	26	8	3	88.2	10.9	0.9
	156	(11)	36.	13.	-	39	1.	4	94.2	5.1	0.6
	436	(12)	34	17	-	27.	4.	4	87.2	12.4	0.5
	793	(13)	35	17	1.	25	3.	13.	95.8	3.8	0.4
	75	(14)	47	9	-	33	1.	9.	100.0	0.0	0.0
	27	(15)	15	15	-	59	-	7	96.3	3.7	0.0
	298	(16)	45	11	-	38	1	5	100.0	0.0	0.0
A											
	21	(17)	38	14	-	43	-	5	100.0	0.0	0.0
	372	(18)	39	13	-	39.	1.	6	99.2	0.8	0.0
	87	(19)	43	16	-	38	2	1	100.0	0.0	0.0
	333	(20)	28	10	-	48	5	8	98.8	0.9	0.3
	-	(21)	-	-	-	-	-	-	0.0	0.0	0.0
	125	(22)	40	15	-	37	5	1.	98.4	1.6	0.0
	332	(23)	40	22	-	28	7	3	99.7	0.0	0.3
	50	(24)	52	24	-	18	6	-	100.0	0.0	0.0

7. = 7.5%   * = present.

TABLE 16

Percentage Distribution of Sorath Harappan and Other Wares in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION:76N

Sherd percentages

RJD	# Total sherds	Strat.	% Sorath Harappan Fine wares Fr	Fb	Fg	Coarse wares Cb1&R	Cr	Cg	:	% Tot Sorath wares	% Chucky ware	% Other wares
	1028	(1)	86.6	5.1	-	0.8	7.5	*	:	100.0	0.0	0.0
	10641	(2)	78.3	9.4	0.1	4.4	6.9	0.8	:	99.9	0.1	*
C	0	(3)	-	-	-	-	-	-	:	0.0	0.0	0.0
	4752	(4)	70.6	9.2	0.1	10.2	4.7	4.9	:	99.8	0.2	0.0
	3684	(5)	61.5	19.0	1.1	8.9	3.6	2.7	:	96.9	3.1	*
B	2123	(6)	57.8	13.4	-	16.8	5.2	4.1	:	97.4	2.5	0.1
	1408	(7)	55.2	6.5	0.1	33.0	2.9	1.4	:	99.1	0.8	0.1
A	369	(8)	34.4	20.6	0.3	30.6	6.8	6.2	:	98.9	0.8	0.3
	96	(9)	61.4	10.4	-	18.8	7.3	2.1	:	100.0	0.0	0.0

7. = 7.5% * = present.

TABLE 17

Summary Percentage Distribution of Sorath Harappan and Other Wares in Trench 46L of the Main Mound.

ROJDI MAIN MOUND:46L

Sherd percentages

RJD	# Total sherds	Strat.	% Sorath Harappan Fine wares Fr	Fb	Fg	Coarse wares CB1&R	Cr	Cg:	% Tot Sorath wares	% Chucky ware	% Other wares
C	10896	(2-4)	65.6	13.1	0.1	8.2	11.3	0.6:	98.9	0.5	0.6
B	4961	(5-9)	49.3	10.7	0.1	23.0	11.1	1.8:	96.0	1.0	3.0
A	3646	(10-24)	36.5	15.5	0.3	32.2	4.3	6.5:	95.3	4.4	0.4
A2	2326	(10-16)	36.1	15.6	0.5	29.2	4.3	7.3:	93.0	6.5	0.5
A1	1320	(17-24)	37.1	15.3	0.0	37.5	4.4	5.0:	99.2	0.6	0.2

TABLE 18

Summary Percentage Distribution of Sorath Harappan and Other Wares in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION:76N

Sherd percentages

RJD	# Total sherds	Strat.	% Sorath Harappan Fine wares Fr	Fb	Fg	Coarse wares Cb1&R	Cr	Cg:	% Tot Sorath wares	% Chucky ware	% Other wares
C	19077	(2-5)	73.2	11.2	0.3	6.7	5.7	2.2:	99.3	0.7	*
B	2123	(6)	57.8	13.4	-	16.8	5.2	4.1:	97.4	2.5	0.1
A	1873	(7-9)	51.4	9.5	0.1	31.8	3.9	2.4:	99.1	0.7	0.1

* = present.

TABLE 19

Ratio between Sorath Harappan Fine Wares and Sorath Harappan Coarse Wares in Trench 46L of the Main Mound.

ROJDI MAIN MOUND: 46L

RJD	Strat.	# Tot Sorath wares	Sorath Harappan wares # Fine wares	:	# Coarse wares	% Fine wares	:	% Coarse wares
	(1)	545	503	:	42	92.	:	7.
	(2)	1977	1696	:	281	86	:	14
C	(3)	2789	2303	:	486	82.	:	17.
	(4)	6012	4596	:	1416	76	:	24
	(5)	2399	1473	:	926	61	:	39
	(6)	549	376	:	173	68	:	32
B	(7)	0	-	:	-	-	:	-
	(8)	841	596	:	245	71	:	29
	(9)	973	538	:	435	55	:	45
	(10)	477	274	:	203	57	:	43
	(11)	147	78	:	69	53	:	47
	(12)	380	223	:	157	59	:	41
	(13)	760	422	:	338	56	:	44
	(14)	75	42	:	33	56	:	44
	(15)	26	8	:	18	31	:	69
	(16)	298	168	:	130	56	:	44
A							:	
	(17)	21	11	:	10	52	:	48
	(18)	369	193	:	176	52	:	48
	(19)	87	51	:	36	59	:	41
	(20)	329	124	:	205	38	:	62
	(21)	0	-	:	-	-	:	-
	(22)	123	69	:	54	56	:	44
	(23)	331	205	:	126	62	:	38
	(24)	50	38	:	12	76	:	24

7. = 7.5%

TABLE 20

Ratio between Sorath Harappan Fine Wares and Sorath Harappan Coarse Wares in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION:76N

RJD	Strat.	# Tot Sorath wares	Sorath Harappan wares # Fine wares	:	# Coarse wares	% Fine wares	:	% Coarse wares
	(1)	1028	942	:	86	91.6	:	8.4
	(2)	10630	9347	:	1283	87.9	:	12.4
C	(3)	0	-	:	-	-	:	-
	(4)	4742	3800	:	942	80.1	:	19.9
	(5)	3570	3010	:	560	84.3	:	15.7
B	(6)	2067	1513	:	554	73.2	:	26.8
	(7)	1396	870	:	526	62.3	:	37.7
A	(8)	365	204	:	161	55.9	:	44.1
	(9)	96	69	:	27	71.9	:	28.1

TABLE 21

Summary Ratio between Sorath Harappan Fine Wares and Sorath Harappan Coarse Wares in Trench 46L of the Main Mound.

ROJDI MAIN MOUND:46L

RJD	Strat.	# Tot Sorath wares	Sorath Harappan wares # Fine wares	:	# Coarse wares	% Fine wares	:	% Coarse wares
C	(2-4)	10778	8595	:	2183	79.7	:	20.3
B	(5-9)	4762	2983	:	1779	62.6	:	37.4
A	(10-24)	3473	1906	:	1567	54.9	:	45.1
A2	(10-16)	2163	1215	:	948	56.2	:	43.8
A1	(17-24)	1310	691	:	619	52.7	:	48.3

TABLE 22

Summary Ratio between Sorath Harappan Fine Wares and Sorath Harappan Coarse Wares in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION : 76N

RJD	Strat.	# Tot Sorath wares	Sorath Harappan wares # Fine wares	:	# Coarse wares	% Fine wares	:	% Coarse wares
C	(2-5)	18942	16157	:	2785	85.3	:	14.7
B	(6)	2067	1513	:	554	73.2	:	26.8
A	(7-9)	1857	1143	:	714	61.6	:	38.4

TABLE 23

Rojdi Main Mound: Trench 46L: Percentage Distribution of Sorath Harappan Fine Wares: Fine Red, Fine Buff and Fine Grey; and Percentage Distribution of Sorath Harappan Coarse Wares: Coarse Black and Red, Coarse Red, and Coarse Grey.

ROJDI MAIN MOUND:46L

# Tot Sorath wares	RJL	Strat.	# Fine wares	% Sorath fine wares Fr	Fb	Fg	RJD	Strat.	# Coarse wares	% Sorath coarse wares Cbl&r	Cr	Cg
545		(1)	503	84	16	-		(1)	42	16	78.	4.
1977		(2)	1696	82.	17.	-		(2)	281	36	62.	2
2789	C	(3)	2303	86	13.	*	C	(3)	486	29	69	0
6012		(4)	4596	82	18	*		(4)	1416	45	51	4
2399		(5)	1473	83	17	*		(5)	926	53	41	6
549		(6)	376	82	18	*		(6)	173	74	24	2
-	B	(7)	-	-	-	-	B	(7)	-	-	-	-
841		(8)	596	83	17	-		(8)	245	79	20	1
973		(9)	538	78	22	-		(9)	435	76	18	6
477		(10)	274	68	32	*		(10)	203	70	22	8
147		(11)	78	73	27	-		(11)	69	88	3	9
380		(12)	223	66	34	-		(12)	157	77	13	10
760		(13)	422	65	32	3		(13)	338	60	8	32
75		(14)	42	83	17	-		(14)	33	76	3	21
26		(15)	8	50	50	-		(15)	18	89	-	11
298		(16)	168	80	20	-		(16)	130	87	2	11
	A						A					
21		(17)	11	73	27	-		(17)	10	90	-	10
369		(18)	193	75	25	-		(18)	176	84	3	13
89		(19)	51	73	27	-		(19)	36	92	5	3
329		(20)	124	74	26	-		(20)	205	77	9	14
-		(21)	-	-	-	-		(21)	-	-	-	-
123		(22)	69	72	28	-		(22)	54	85	11	4
331		(23)	205	64	36	-		(23)	126	73	18	9
50		(24)	38	62	38	-		(24)	12	75	25	-

7. = 7.5%   * = present.

TABLE 24

Rojdi South Extension: Trench 76N: Percentage Distribution of Sorath Harappan Fine Wares: Fine Red, Fine Buff and Fine Grey; and Percentage Distribution of Sorath Harappan Coarse Wares: Coarse Black and Red, Coarse Red, and Coarse Grey.

ROJDI SOUTH EXTENSION:76N

Sorath Harappan wares												
# Tot Sorath wares	RJD	Strat.	# Fine wares	% Sorath fine wares Fr	Fb	Fg	RJD	Strat.	# Coarse wares	% Sorath coarse wares CblR	Cr	Cg
1028		(1)	942	94.5	5.5	-		(1)	86	9.3	89.5	1.2
10630		(2)	9347	89.2	10.7	0.1		(2)	1283	36.2	56.9	6.9
0	C	(3)	0	-	-	-	C	(3)	0	-	-	-
4742		(4)	3800	88.3	11.5	0.1		(4)	942	51.6	23.6	24.8
3570		(5)	3010	75.3	23.3	1.4		(5)	560	58.8	23.8	17.5
2067	B	(6)	1513	81.2	18.8	-	B	(6)	554	64.2	20.0	15.7
1396		(7)	870	89.3	10.6	0.1		(7)	526	88.4	7.8	3.8
365	A	(8)	204	62.3	37.5	0.5	A	(8)	161	70.2	15.5	14.3
96		(9)	69	85.5	14.5	-		(9)	27	66.7	26.9	7.4

TABLE 25

Rojdi Main Mound: Trench 46L: Summary Percentage Distribution of Sorath Harappan Fine Wares: Fine Red, Fine Buff and Fine Grey; and Summary Percentage Distribution of Sorath Harappan Coarse Wares: Coarse Black and Red, Coarse Red, and Coarse Grey.

ROJDI MAIN MOUND:46L

Sorath Harappan wares												
# Tot Sorath wares	RJD	Strat.	# Fine wares	% Sorath fine wares Fr	Fb	Fg	RJD	Strat.	# Coarse wares	% Sorath coarse wares Cbl&r	Cr	Cg
10896	C	(2-4)	8595	83.2	16.8	0.1	C	(2-4)	2183	40.8	56.4	2.8
4961	B	(5-9)	2983	82.0	17.9	0.1	B	(5-9)	1779	64.1	30.8	5.1
3646	A	(10-24)	1906	69.7	29.6	0.6	A	(10-24)	1567	74.9	10.7	15.0
2326	A2	(10-16)	1215	69.1	29.9	1.0	A2	(10-16)	948	71.6	10.6	17.8
1320	A1	(17-24)	691	70.8	29.2	0.0	A1	(17-24)	619	80.0	9.4	10.7

TABLE 26

Rojdi South Extension: Trench 76N: Summary Percentage Distribution of Sorath Harappan Fine Wares: Fine Red, Fine Buff and Fine Grey; and Summary Percentage Distribution of Sorath Harappan Coarse Wares: Coarse Black and Red, Coarse Red, and Coarse Grey.

ROJDI SOUTH EXTENSION:76N

Sorath Harappan wares												
# Tot Sorath wares	RJD	Strat.	# Fine wares	% Sorath fine wares Fr	Fb	Fg	RJD	Strat.	# Coarse wares	% Sorath coarse wares Cbl&r	Cr	Cg
18942	C	(2-5)	16157	86.4	13.3	0.3	C	(2-5)	2785	46.0	39.0	15.1
2067	B	(6)	1513	81.2	18.8	-	B	(6)	554	64.2	20.0	15.7
1857	A	(7-9)	1143	84.3	15.6	0.2	A	(7-9)	714	83.5	10.2	6.3

TABLE 27

Distribution of Sorath Harappan Decorated Sherds in Trench 46L of the Main Mound.

ROJDI MAIN MOUND:46L

RJD	# Tot Sorath wares	Strat.	# Fine wares sherds	Sorath Harappan fine ware # Graf-fito	# Paint-ing	# Burn-ish	# Inci-sion	# Impre-ssion	# Tot	# Paint. horiz. bands	# Coarse wares sherds	Sorath Harappan coarse wares # Graf-fito	# Paint-ing	# Burn-ish	# Inci-sion	# Impre-ssion	# Tot	# Corr. horiz. bands
	545	(1)	503	1	3	2	-	-	6	49	42	-	-	-	-	-	0	1
	1977	(2)	1696	26	25	7	-	-	58	213	281	-	-	-	1	-	1	6
C	2789	(3)	2303	37	23	32	-	6	98	277	486	-	-	-	1	-	1	11
	6012	(4)	4596	128	94	60	1	2	285	802	1416	1	-	2	-	-	3	71
	2399	(5)	1473	32	35	6	-	1	74	347	926	-	-	-	1	1	2	75
	549	(6)	376	10	5	3	-	-	18	89	173	-	-	-	-	-	0	18
B	-	(7)	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0	0
	841	(8)	596	3	11	3	-	-	17	147	245	-	-	-	-	13	13	15
	973	(9)	538	6	7	4	1	1	19	119	435	-	-	1	1	1	3	30
	477	(10)	274	1	5	-	-	-	6	82	203	-	-	1	-	-	1	15
	147	(11)	78	1	-	-	-	-	1	25	69	-	-	1	-	-	1	3
	380	(12)	223	3	2	-	-	-	5	70	157	-	-	-	-	-	0	8
	760	(13)	422	13	15	-	2	-	30	116	338	-	-	2	-	-	2	36
	75	(14)	42	-	-	-	-	-	0	15	33	-	-	-	-	-	0	3
	26	(15)	8	-	-	-	-	-	0	4	18	-	-	-	-	-	0	2
	298	(16)	168	6	3	-	-	-	9	51	130	-	-	-	-	-	0	8
A							-											
	21	(17)	11	-	-	-	-	-	0	3	10	-	-	-	-	-	0	3
	369	(18)	193	-	1	-	-	-	1	44	176	-	-	-	-	-	0	7
	87	(19)	51	1	1	-	-	-	2	14	36	-	-	-	-	-	0	3
	329	(20)	124	-	1	-	-	-	1	65	205	-	-	-	-	-	0	13
	-	(21)	-	-	-	-	-	-	0	-	-	-	-	-	-	-	0	0
	123	(22)	69	-	1	-	-	-	1	16	54	-	-	-	-	-	0	0
	331	(23)	205	1-	-	-	-	-	1	45	126	-	-	-	-	-	0	0
	50	(24)	38	-	1	-	-	-	1	12	12	-	-	-	-	-	0	0

TABLE 28

Distribution of Sorath Harappan Decorated Sherds in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION : 76N

RJD	# Tot Sorath wares	Strat.	# Fine wares sherds	Sorath Harappan fine wares: # Graf-fito	# Paint-ing	# Burn-ish	# Inci-sion	# Impre-ssion	# Tot	# Coarse wares sherds	Sorath Harappan coarse wares: # Graf-fito	# Paint-ing	# Burn-ish	# Inci-sion	# Impre-ssion	# Tot	# Corr. horiz. bands
	1028	(1)	942	2	2	-	-	-	4	86	-	-	1	-	-	1	1
	10630	(2)	9347	26	42	1	-	-	69	1283	-	-	1	-	-	1	17
C	0	(3)	-	-	-	-	-	-	0	-	-	-	-	-	-	0	0
	4742	(4)	3800	42	31	11	-	-	84	942	-	-	2	-	-	2	9
	3570	(5)	3010	25	23	5	-	-	53	560	-	-	1	-	-	1	17
B	2067	(6)	1513	12	20	2	-	-	34	554	-	-	-	-	-	-	19
	1396	(7)	870	3	4	-	-	-	7	526	-	-	1	-	-	1	10
A	365	(8)	204	1	-	-	-	-	1	161	-	-	-	-	-	0	10
	96	(9)	69	-	-	-	-	-	0	27	-	-	-	-	-	0	0

TABLE 29

Summary Percentage Distribution of Sorath Harappan Decorated Sherds in Trench 46L of the Main Mound.

ROJDI MAIN MOUND : 46L

RJD	# Tot Sorath wares sherds	Strat.	# Fine wares sherds	Sorath Harappan fine wares: % Graf-fito	% Paint-ing	% Burn-ish	% Inci-sion	% Impre-ssion	% Tot	% Paint. horiz. bands	# Coarse wares sherds	Sorath Harappan coarse wares: % Graf-fito	% Paint-ing	% Burn-ish	% Inci-sion	% Impre-ssion	% Tot	% Corr. horiz. bands
C	10778	(2-4)	8595	2.22	1.65	1.15	0.01	0.09	5.13	15.1	2183	0.05	-	0.09	0.09	-	0.23	4.03
B	4762	(5-9)	2983	1.71	1.94	0.53	0.03	0.07	4.28	23.5	1779	-	-	0.06	0.11	0.84	1.01	7.76
A	3473	(10-24)	1906	1.36	1.57	-	0.10	-	3.04	29.5	1567	-	-	-	0.26	-	0.26	6.45
A2	2163	(16-10)	1215	1.98	2.06	-	0.16	-	4.20	29.9	948	-	-	-	0.42	-	0.42	7.91
A1	1310	(24-17)	691	0.29	0.72	-	-	-	1.01	28.8	619	-	-	-	-	-	0.0	4.20

TABLE 30 :

Summary Percentage Distribution of Sorath Harappan Decorated Sherds in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION : 76N				% Sorath Harappan decorated sherds													
				Sorath Harappan fine wares							Sorath Harappan coarse wares						
RJD	# Tot Sorath wares sherds	Strat.	# Fine wares sherds	% Graf-fito	% Paint-ing	% Burn-ish	% Inci-sion	% Impre-ssion	% Tot	# Coarse wares sherds	% Graf-fito	% Paint-ing	% Burn-ish	% Inci-sion	% Impre-ssion	% Tot	% Corr. horiz. bands
C	18942	(2-5)	16157	0.58	0.59	0.11	-	-	1.27	2785	-	-	-	0.14	-	0.14	1.54
B	2067	(6)	1513	0.79	1.32	0.13	-	-	2.25	554	-	-	-	-	-	0.00	3.43
A	1857	(7-9)	1143	0.35	0.35	-	-	-	0.70	714	-	-	-	0.14	-	0.14	2.80

TABLE 31

Distribution of Sherd-use as Raw Material in Trench 46L of the Main Mound.

ROJDI MAIN MOUND : 46L

# Tot Sorath wares sherds	RJD	Strat.	# Fine wares sherds	Sherd-use as raw material: Sorath Harappan fine wares # Perf. disk	# Unperf. disk	# Notched sherd	# Shaped sherd	# Tot	# Coarse wares sherds	Sorath Harappan coarse wares # Perf. disk	# Unperf. disk	# Notched sherd	# Shaped sherd	# Tot
595		(1)	503	-	6	-	-	6	42	-	-	-	-	0
1977		(2)	1696	3	12	7	4	26	281	-	2	-	-	2
2789	C	(3)	2303	5	10	6	5	26	486	-	1	-	-	1
6012		(4)	4596	3	34	11	5	53	1416	-	-	-	-	0
2399		(5)	1473	3	18	-	2	23	926	-	1	-	-	1
549		(6)	376	1	4	-	1	6	173	-	-	-	-	0
-	B	(7)	-	-	-	-	-	0	-	-	-	-	-	0
841		(8)	596	10	2	4	-	16	245	2	-	-	-	2
973		(9)	538	4	13	2	4	23	435	2	6	-	-	8
477		(10)	274	4	9	-	3	16	203	3	5	-	-	8
147		(11)	78	1	3	1	-	5	69	-	-	-	-	0
380		(12)	223	1	4	1	2	8	157	-	4	-	-	4
760		(13)	422	1	19	2	3	25	338	1	12	-	-	13
75		(14)	42	-	-	-	-	0	33	-	-	-	-	0
26		(15)	8	-	-	-	-	0	18	-	-	-	-	0
298		(16)	168	-	2	-	-	2	130	-	1	-	-	1
	A													
21		(17)	11	-	-	-	-	0	10	-	-	-	-	0
369		(18)	193	-	4	-	-	4	176	-	-	-	-	0
87		(19)	51	-	-	-	-	0	36	-	-	-	-	0
329		(20)	124	-	-	-	-	0	205	-	3	-	-	3
-		(21)	-	-	-	-	-	0	-	-	-	-	-	0
123		(22)	69	-	-	-	-	0	54	-	-	-	-	0
331		(23)	205	-	-	-	-	0	126	-	2	-	-	2
50		(24)	38	-	-	-	-	0	12	-	-	-	-	0

TABLE 32

Distribution of Sherd-use as Raw Material in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION : 76N

Sherd-use as raw material

# Tot Sorath wares sherds	RJD	Strat.	# Fine wares sherds	Sorath Harappan fine wares # Perf. disk	# Unperf. disk	# Notched sherd	# Shaped sherd	# Tot	# Coarse wares sherds	Sorath Harappan coarse wares # Perf. disk	# Unperf. disk	# Notched sherd	# Shaped sherd	# Tot
1028		(1)	942	-	-	1	-	1	86	-	-	-	-	0
10630		(2)	9347	8	21	2	2	33	1283	-	-	-	-	0
0	C	(3)	-	-	-	-	-	0	-	-	-	-	-	0
4742		(4)	3800	11	13	2	1	27	942	1	-	-	-	1
3570		(5)	3010	3	10	-	3	16	560	-	1	-	-	1
2067	B	(6)	1513	3	9	-	4	16	554	-	1	-	-	1
1396		(7)	870	1	2	-	-	3	526	1	-	-	-	1
365	A	(8)	204	1	-	-	-	1	161	-	-	-	-	0
96		(9)	69	1	2	-	-	3	27	-	-	-	-	0

TABLE 33

Summary Percentage Distribution of Sherd-use as Raw Material in Trench 46L of the Main Mound.

ROJDI MAIN MOUND : 46L

% Sherd-use as raw material

# Tot Sorath wares sherds	RJD	Strat.	# Fine wares sherds	Sorath Harappan fine wares % Perf. disk	% Unperf. disk	% Notched sherd	% Shaped sherd	% Tot	# Coarse wares sherds	Sorath Harappan coarse wares % Perf. disk	% Unperf. disk	% Notched sherd	% Shaped sherd	% Tot
10778	C	(2–4)	8595	0.13	0.65	0.28	0.16	1.22	2183	—	0.13	—	—	0.13
4762	B	(5–9)	2983	0.60	1.24	0.20	0.23	2.27	1779	0.22	0.39	—	—	0.61
3473	A	(10–24)	1906	0.37	2.15	0.21	0.42	3.15	1567	0.26	1.72	—	—	1.98
2163	A2	(16–10)	1215	0.58	3.04	0.32	0.66	4.60	948	0.42	2.32	—	—	2.74
1310	A1	(24–17)	691	—	0.58	—	—	0.58	616	—	0.80	—	—	0.80

TABLE 34

Summary Percentage Distribution of Sherd-use as Raw Material in Trench 76N of the South Extension.

ROJDI SOUTH EXTENSION : 76N

% Sherd-use as raw material

# Tot Sorath wares sherds	RJD	Strat.	# Fine wares sherds	Sorath Harappan fine wares: % Perf. disk	% Unperf. disk	% Notched sherd	% Shaped sherd	:	Tot	# Coarse wares sherds	Sorath Harappan coarse wares: % Perf. disk	% Unperf. disk	% Notched sherd	% Shaped sherd	:	Tot
18942	C	(2-5)	16157	0.14	0.27	0.02	0.04	:	0.47	2785	0.04	0.04	—	—	:	0.07
2067	B	(6)	1513	0.20	0.59	—	0.26	:	1.06	554	—	0.18	—	—	:	0.18
1857	A	(7-9)	1143	0.26	0-35	—	—	:	0.61	714	0.14	—	—	—	:	0.14

THE SMALL FINDS

Y.M. Chitalwala

A typological presentation of selected small finds from the renewed excavation at Rojdi is made in this section of this report. It should be recalled that only trenches 46L, 76N and the upper strata of the South Extension have been analyzed in sufficient detail for period assignments to be confidently made for objects from excavation. So as not to err, a "?" has been added to small finds for which an estimate for their context is available, but for which no final determination as to period can be said to exist.

Copper Based Implements

No metallurgical analysis has yet been done on the rich inventory of copper-based metal implements from renewed excavations at Rojdi. There artifacts are important since they document the abundant presence of metal tools within the Post-urban, Rojdi C, context within Saurashtra. The axe, bar celt, *parsu* and bangles are especially important in this regard. There has been some metallurgical analysis of artifacts found during earlier excavation at Rojdi (Bhowmik 1969 and 1976).

Copper Axe (Figure 75, Plate 35). 14.8 × 9.5 × 0.6 centimeters. Found in the Large Building, Main Mound. Trench 46L. Rojdi C.

Copper Bar Celt (Figure 76, Plate 36). 32.1 × 4.8 × 0.7 centimeters. Found in the Large Building on the Main Mound. This object was broken in antiquity when it was bent as it was placed in a shallow pit. Trench 46L. Rojdi C.

Copper Parsu or Knife (Figure 77, Plate 37). 17.5 × 5 × 0.3 centimeters. This cutting tool has parallels in the Sorath Harappan context at Mitathal (Suraj Bhan 1975: 65) and Kurada in Rajasthan (Agrawala 1980: Pl II, p. 90). Found in trench 75L on the South Extension. There are no building associations. One side of the *parsu* has an "endless knot" design on it (see also Marshall 1931 Pl. CXVIII, 5). H. Sarkar and B.M. Pande have written on this design as well (Sarkar and Pande 1969-70). The upper, non-cutting edge, has transverse marks which appear to indicate that blows were struck there in antiquity. Rojdi C.

Copper Ornament (Figure 78, Plate 38). 10.4 × 4.6 × 0.1 centimeters. This ribbed object was fashioned on a sheet of copper. There are no perforations. The object has no parallels that we know of, and it has been called an "ornament" simply to give it a name. Found in trench 76J. Rojdi C.

Copper Bangle (Figure 79, 1). Approximately 17.5 centimeters diameter, overlapping ends. Trench 771, South Extension. Rojdi C.

Copper Toe Ring (?) Figure 79, 2). Approximately 3 centimeters diameter. From trench 751, South Extension. Rojdi C.

Copper Ring (Figure 79, 3). Approximately 2.5 centimeters diameter. From trench 75L, South Extension. Rojdi C.

Copper Bangle (Figure 79, 4). Approximately 4.5 centimeters diameter. From trench 27S, North Slope. Rojdi C(?).

Copper Ring (Figure 79, 5). Approximately 2.1 centimeters diameter. From trench 20P. Rojdi B (?).

Copper Pin (Figure 79, 6). 9.6 cm long, centimeters approximately 0.3 centimeters diameter wire. From trench 76J, Rojdi C.

Terracotta Objects

Triangular Terracotta "Cake" (Figure 80, 1). Trench 20P, North Slope. This is not a "classic" Harappan triangular cake. Rojdi C (?).

Triangular Terracotta "Cake" (Figure 80, 2). Trench 77J, South Extension. This is not a "classic" Harappan triangular cake. Rojdi C.

Terracotta "Plaque" (Figure 80, 3). Fine Red Ware, red slip on edges, buff slip on unpainted side, painted in black. Trench 45K, Main Mound. Rojdi B (?).

Terracotta Bead (Figure 81, 1). Approximately 3.5 centimeters diameter, ca. 2.5 cm thick. Bead from trench 20P, North Slope. Rojdi B (?).

Terracotta Disk (Figure 81, 2). Disk from trench 46L, Main Mound. Rojdi A2.

Terracotta Disk (Figure 81, 3). Disk from trench 45K, Main Mound. Rojdi A (?).

Terracotta Disk (Figure 81, 4). Disk from trench 46L, Main Mound. Rojdi C.

Terracotta Disk (Figure 81, 5). Disk from trench 78L, South Extension. Rojdi C.

Terracotta Ring or Disk (Figure 81, 6). From trench 78H, South Extension. Rojdi C.

Terracotta Disk or Wheel (Figure 82, 1). From trench 78L, South Extension. Rojdi C.

Terracotta Bead or Ear Spool (Figure 82, 2). Beads or ear spools of this type are common in Sorath Ḥarappan sites in Gujarat. From trench 200. Rojdi B (?).

Fragment of a Terracotta Bead or Ear Spool (Figure 82, 3). From trench 76N, South Extension. Rojdi C.

Terracotta Cube, Possibly a Weight (Figure 82, 4). From trench 76P, South Extension. Rojdi C.

Fine Ware Sherd with Two Graffiti Signs (Figure 82, 5). From trench 20P, North Slope. Rojdi B(?).

Terracotta Bull Figurine (Figure 83, 1). From trench 45K, Main Mound. Figurines are rare at Rojdi. Rojdi A (?).

Terracotta Bull Figurine (Figure 83, 2). From trench 46L, Main Mound. Rojdi A.

Objects of Stone

Stone Weight (Figure 84, 1). Basalt(?). From trench 45K, Main Mound. Rojdi A (?).

Stone Weight (Figure 84, 2). Unidentified stone. From trench 20T, North Slope. Rojdi B(?).

Stone Burnisher? (Figure 84, 3). Unidentified stone. Very smooth along one side and top. From trench 20X. Rojdi C (?).

Biconical Carnelian Bead (Figure 84, 4). From trench 20Q, North Slope. Rojdi B(?).

Limestone or Shell Bead (Figure 84, 5). From trench 20P, North Slope. Rojdi B(?).

Etched Carnelian Bead (Figure 84, 6). Broken bead with "occular" motif, broken on the perforation. Trench 44AC, Gateway. Rojdi C (?).

Limestone or Shell Bead (Figure 84, 7). From trench 76J, South Extension. Rojdi C.

Chipped Stone

Blade Core (Figure 85, 1). Unidentified green stone (jasper?). Trench 75M, South Extension. Rojdi C.

Blade Core (Figure 85, 2). Polyhedral core, salacious stone. From trench 76H, South Extension. Rojdi C.

Blade Core (Figure 85, 3). Semi-polyhedral. Unidentified green stone (jasper?). From trench 83H, South Extension. Rojdi C.

Fragment from Blade Core Figure 85, 4). Chalcedony. From trench 23U, North Slope. Rojdi C(?).

Trapezoidal Blade (Figure 85, 5). Semi-silicious stone. From trench 21U, North Slope. Rojdi C(?).

Trapezoidal Blade (Figure 85, 6). Semi-silicious stone. From trench 21U, North Slope. Rojdi C(?).

Triangular Blade (Figure 85, 7). Semi-silicious stone. From trench 25T, North Slope. Rojdi C(?).

Triangular Blade (Figure 85, 8). Semi-silicious stone. From trench 27S. Rojdi C(?).

Trapezoidal Blade Fragment (Figure 85, 9). Unidentified stone. From trench 76O, South Extension. Rojdi C.

Slightly Crested Blade (Figure 85, 10). Unidentified stone. From trench 77H, South Extension. Rojdi C.

Flake Tool (Figure 85, 11). Semi-silicious stone. From trench 75G, South Extension. Rojdi C.

Flake Tool (Figure 85, 12). Unidentified stone. From trench 74H, South Extension. Rojdi C.

Flake Tool (Figure 85, 13). Unidentified stone. From trench 75N, South Extension. Rojdi C.

Flake Tool (Figure 85, 14). Unidentified stone. From trench 76L, South Extension. Rojdi B(?).

Stone weights (Plates 39 and 40). Three of the stone weights found at Rojdi, in the style of the Mature Harappan are shown in Plates 39 and 40.



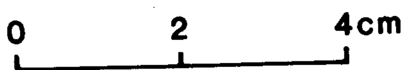


Fig. 75 Copper Axe

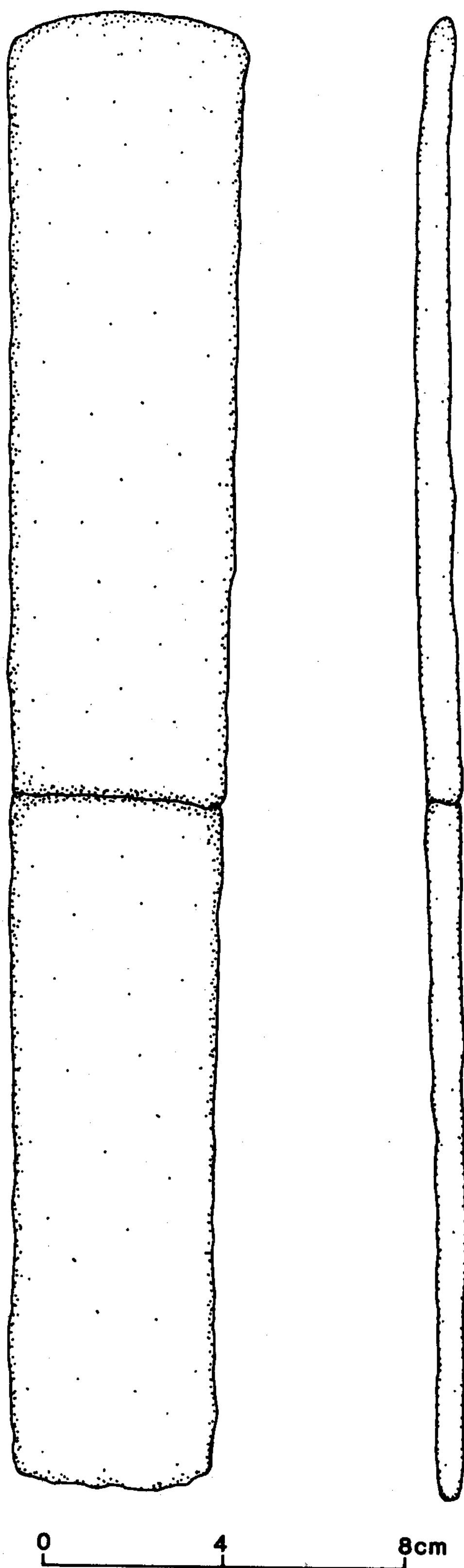
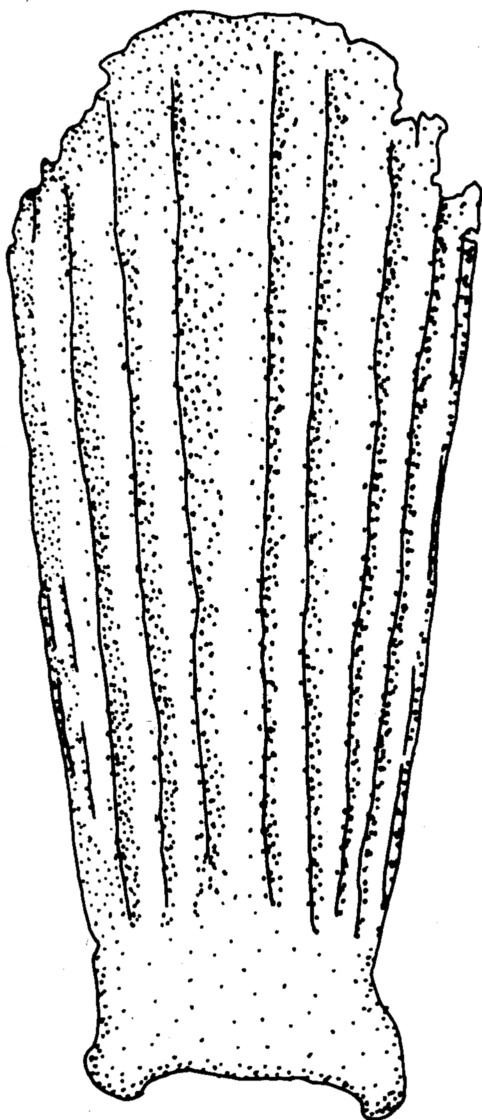


Fig. 76 Copper Bar Celt



Fig. 77 Copper Parsu or Knife



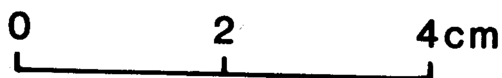
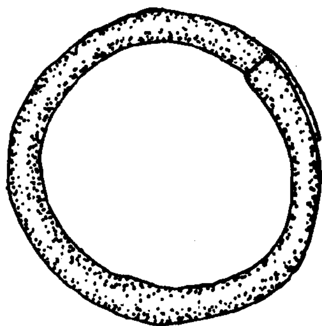
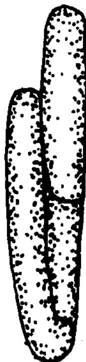
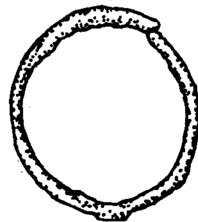


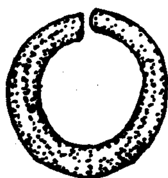
Fig. 78 Copper Ornament

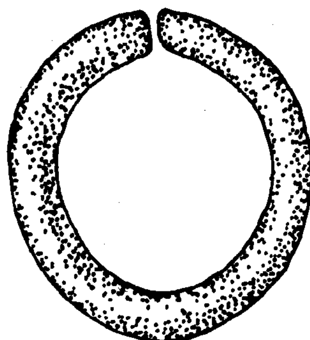
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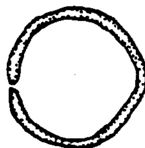
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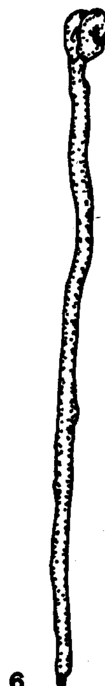


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Fig. 79 Copper Objects

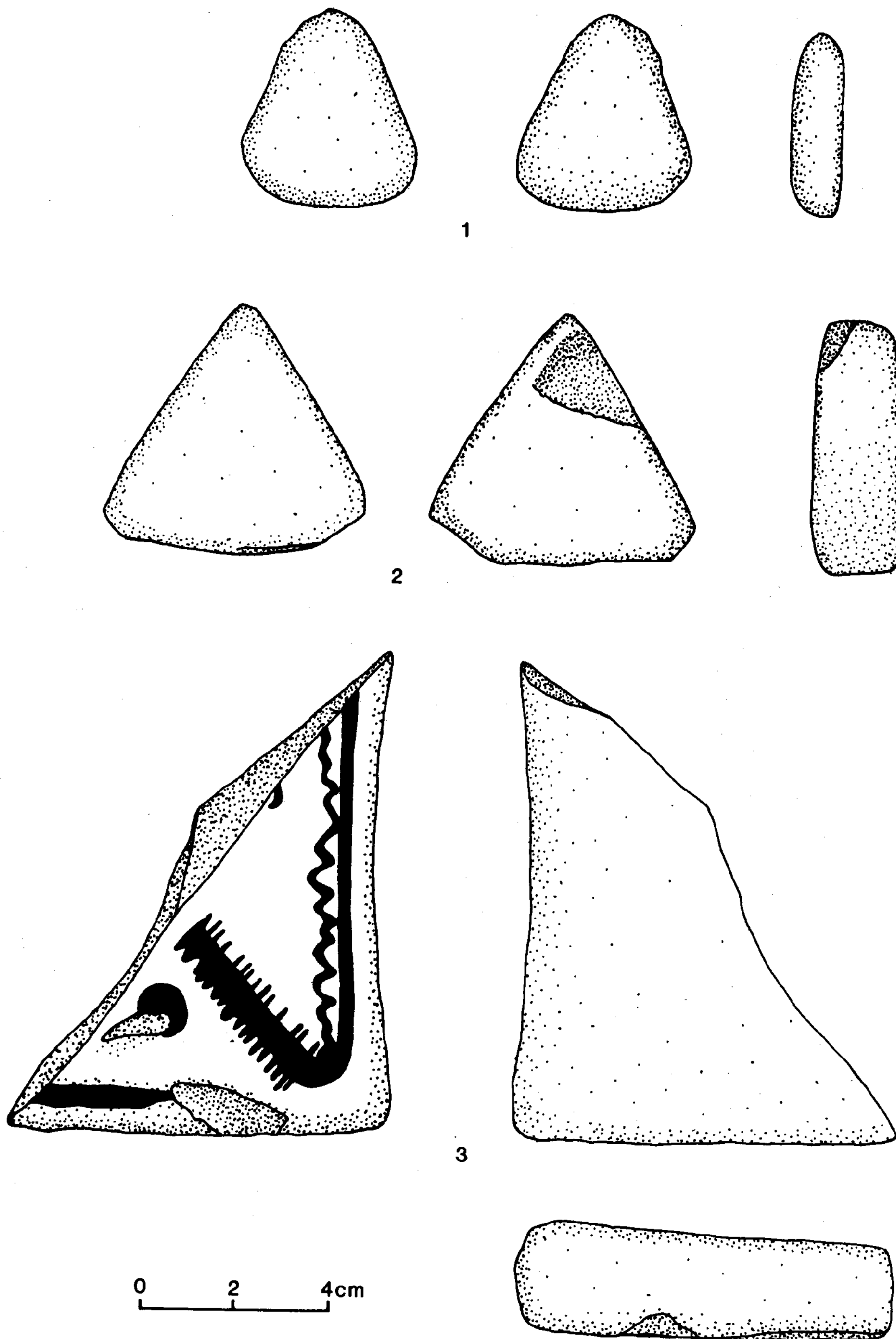


Fig. 80 Terracotta objects

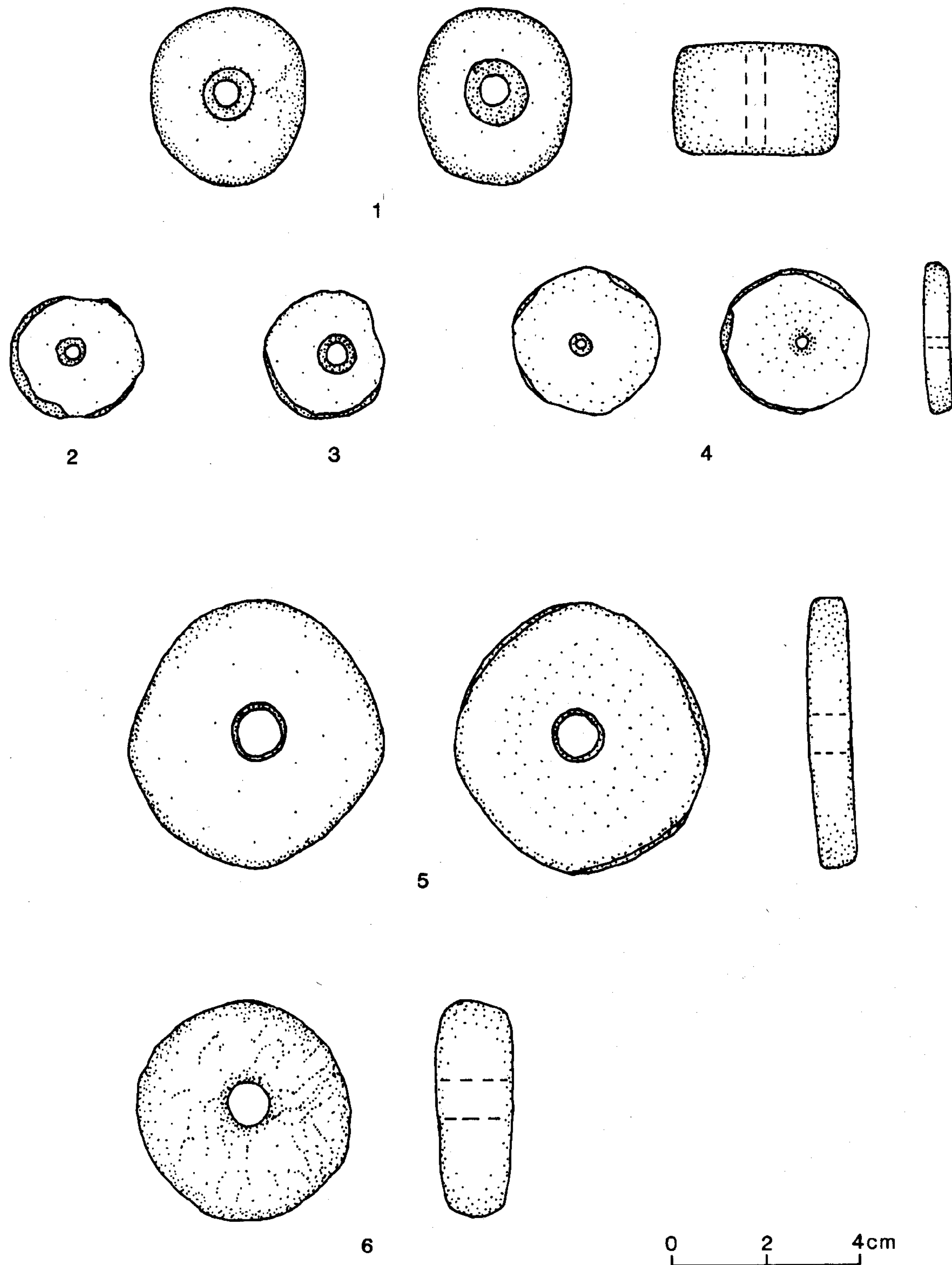
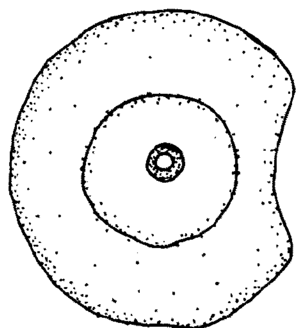
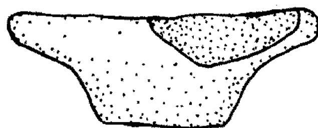
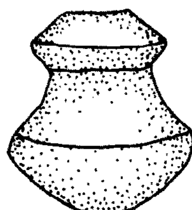
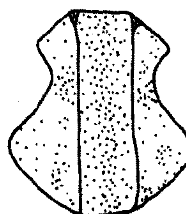
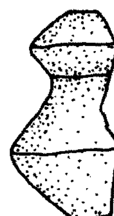


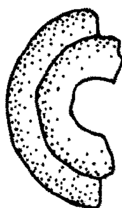
Fig. 81 Terracotta Objects

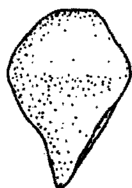
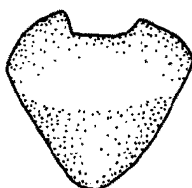
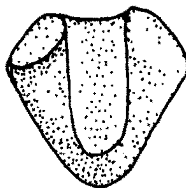



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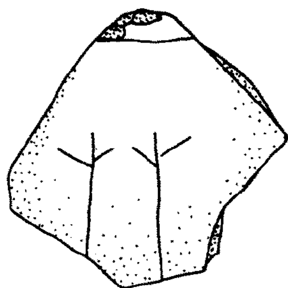
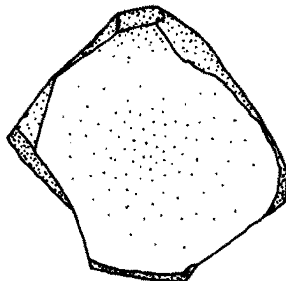


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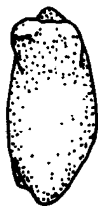
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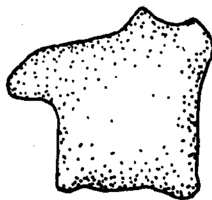



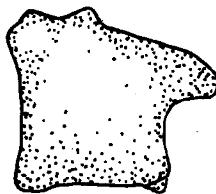

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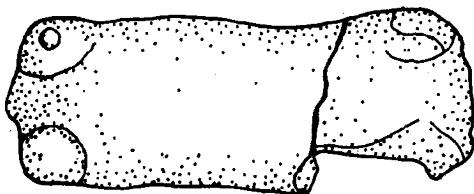
Fig. 82 Terracotta Objects

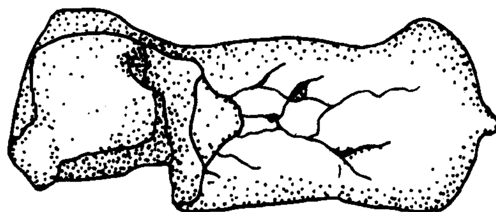


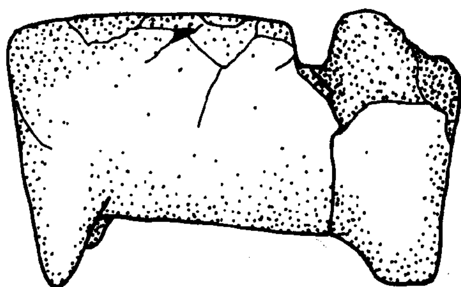


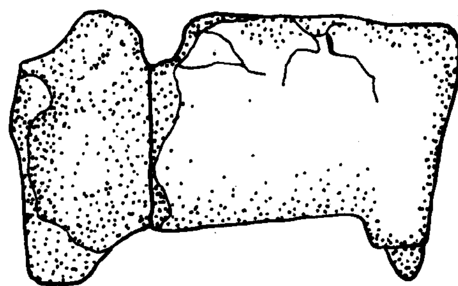












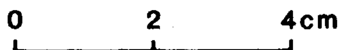
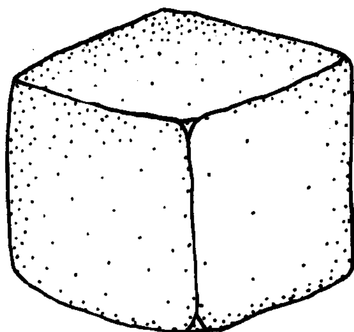
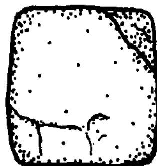
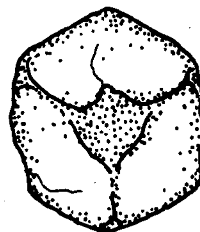


Fig. 83 Terracotta Bull Figurines

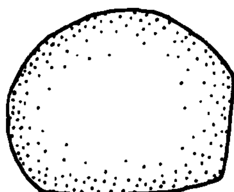


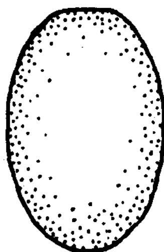
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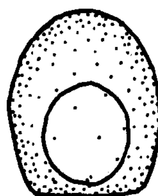


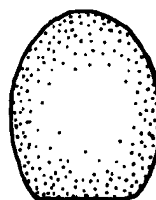


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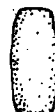
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6







7

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Fig. 84 Stone Objects

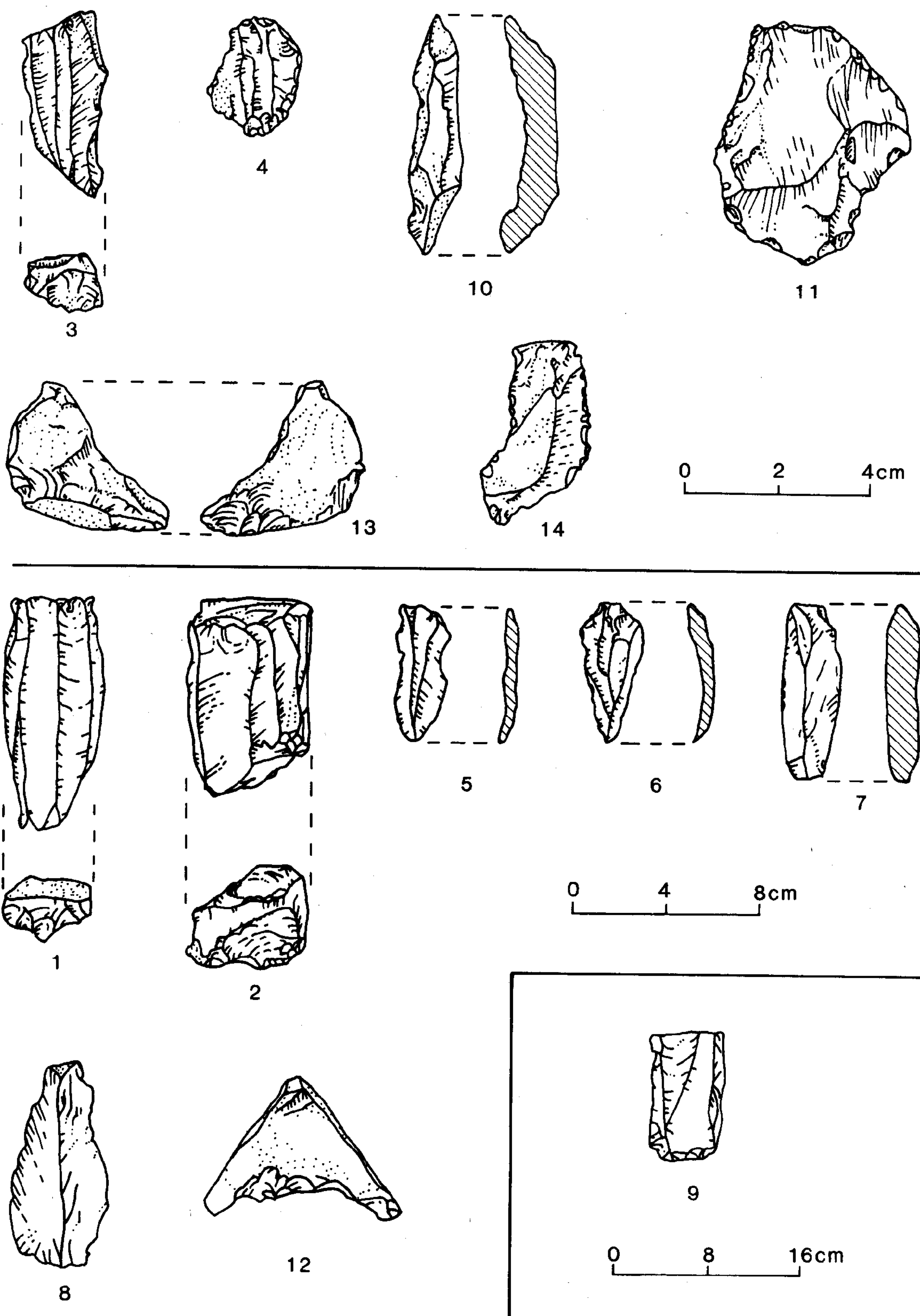


Fig. 85 Chipped Stone Artifacts

THE ROJDI CHRONOLOGY

Before turning to issues of settlement and subsistence we want to present a synthesis of the Rojdi chronology as we now see it. This will bring together the relative chronologies for the architecture and ceramics with the absolute dates that radiocarbon tests have supplied and were presented in Tables 1 and 2. The basic dates for the ceramic phases are: Rojdi A: 2500–2200 B.C.; Rojdi B: 2200–2000 B.C.; Rojdi C; 2000–1700 B.C. The full synthesis of ceramic phases, architectural history and radiocarbon dates is presented in Table 35.

TABLE 35
The Rojdi Chronology

NORTH SLOPE	LARGE SQUARE BUILDING & CIRCUMVALLATION	MAIN MOUND	SOUTH EXTENSION
		Medieval	
ROJDI C (2000–1700 B.C.)			
	Dump in Large Square Building Sealed		Architectural Subphase 2b Remodeling of Structure I
	Large Square Building Used as a Dump		Architectural Subphase 2a Original Structures I, II & III
Construction of the Main Mound Retaining Wall	Construction of the Large Square Building & Circumvallation	Architectural Subphase 2b Construction of the Large Building	Architectural Phase 1 Curved Building in 78I & 79I
ROJDI B (2200–2000 B.C.)		Architectural Subphase 2a Construction of Building in 45L	
Filling the North Slope "Hollow"		Fill	Trash Pits
ROJDI A (2500–2200 B.C.) Fill		Architectural Subphase 1b Bins in 45K Architectural Subphase 1a Floor in 45K and Hearth in 46L	Trash Pits
		VIRGIN SOIL	

SETTLEMENT AND SUBSISTENCE AT ROJDI

Recent years have seen a substantial expansion of our knowledge of Harappan settlement and subsistence. This is largely due to two methodological innovations; systematic exploration and flotation recovery techniques for biological remains. Both of these approaches are being used with considerable success as a part of the Rojdi Project. Before outlining our approach to this excavation a brief review of what is known of Harappan subsistence practices is called for, especially in Sindh and Gujarat.

HARAPPAN SUBSISTENCE: Some General Thoughts

The Harappan subsistence system has received a fair share of attention since the initial excavations of Mohenjodaro and Harappa. Walter Fairservis (1967) wrote a substantial and imaginative review of the food economy of the Harappans which included a reasoned review of their diet. Vishnu-Mittre and Savithri (1982) have reviewed the palaeobotanical evidence from all of the excavated Harappan sites. These data convincingly argue for a diversity of farming practices and a food economy which could have even involved the gathering of wild plants in Kutch. Possehl (1979) has suggested that pastoral nomadism was an extremely important aspect of the Harappan subsistence economy; a proposition that needs further field work for substantiation, but remains a reasonable hypothesis.

Shereen Ratnagar (1986) has recently reviewed the Harappan agricultural system, especially that which pertains to Sindh and the West Punjab. She has made a number of extremely important suggestions in this regard. For example, Ratnagar points out that the *rabi*, or winter crop in this region would have demanded a reasonable amount of irrigation and that this would have come from wells using lift devices, not the rivers of the region. Since this is the season within which the principal Harappan food grains, wheat and barley were grown, the importance of this observation cannot be minimized. Moreover, her discussion makes clear the variable mosaic of agricultural productivity that would have pertained to this region in all of the pre-industrial ages. Sindh in particular is a region which is vulnerable to the whims of the Indus floods, which have significant variation in terms of their magnitude, but more important in terms of the landscape which receives flood waters. The Indus is characterized by a large number of inundation channels which may or may not receive flood waters in any given year depending on the magnitude of flow and erosional/depositional processes in upper Sindh which serve to point flood waters in particular directions. The Indus floods have also been discussed by I.S. Fraser (1958; Lambrick 1964: 15-35 and Leshnick 1973) in considerable detail.

Another summary overview of the Mature Harappan subsistence economy in Sindh has been developed by Louis Flam (1981: 149-54). He suggests that the village farming communities deep in the Indus Valley were *rabi* season wheat and barley cultivators, using naturally irrigated deep riverine hollows with sufficient ground water to avoid irrigation. If other land was used it would have required lift irrigation (Ratnagar 1986) for which there is scant evidence. Vegetables would

have complemented this planting; although *kharif* cultivation of such crops, along with cotton, is also a possibility. In the Kirthar and Sindh Kohistan a relative scarcity of cultivable soils, itself a variable commodity, and rainfall led to three forms of managed irrigation. The first of these is evidenced at the Amri site of Kai Buthi (Flam 1981: 292) with ". . . the diversion of spring water to prepared agricultural fields, similar to the technique used on river plains of the Lower Indus Basin: small, shallow ditches guide water to fields" (Flam 1981: 151). At the Kot Dijian site of Kohtrash (Flam 1981: 331) the natural flooding of seasonal streams, within which there were cultivated fields, is clearly much like practices on the Indus plains and is Flam's second type. The third form of irrigation in the Kirthar/Kohistan region of Sindh was found at the Harappan site of Nuka (Flam 1981: 293). This involved more technological and labor investment than the others since it was based on the construction of stone dams (*gabarbands*) and other devices to impound rain and run-off (Flam 1981: 152).

Agricultural settlements in Sindh would also have maintained herds of domesticated animals: mostly cattle, but also sheep, goats and pigs. That there was some form of pastoral nomadism practiced by people who were mobile and undertook little or no cultivation has been inferred from settlement pattern data (Possehl 1979) and from the historical records of the region. Ratnagar has observed: "Towards the end of the fifth century B.C. Ktesias remarked on people living in upper Sindh, whose exclusive diet was milk (for example, pastoralists) (McCrindle 1882: 84–7). In the seventh century A.D. Yuan Chwang observed "among the low marshes near the Indus for above 1000 li. . . some myriads of families of ferocious disposition. . . who support themselves by rearing cattle; they had no social distinctions and no government" [(Watters 1904/05:629–45 in Ratnagar 1986: 142)]. The pastoral element in a subsistence system would have probably been the predominant mode of subsistence production in the drier eastern and western border areas of ancient Sindh.

What emerges from this overview of Harappan subsistence in Sindh, as well as from the modern subsistence regime, is a variable theme. We think perhaps most, if not all, of the Harappans controlled both herds of domesticated animals and undertook some cultivation. In the active riverine areas of Sindh, agriculture would have predominated and settlement would have been permanent and year round for virtually the entire village-based population. On the eastern and western "desert" fringes pastoralism would have prevailed, with cultivation taking place during and shortly after the monsoon. Groups would have been mobile for most of the year, with all, or part of any given production element settling temporarily while crops were planted, cultivated and harvested. A spatial continuum of production forms linking these two modes of subsistence exploitation would have also been present. There were undoubtedly a large number of variable mixes of emphasis on agriculture and pastoralism.

The subsistence regime in protohistoric Gujarat seems to have been somewhat different, possibly even being dependent on a different constellation of food grains.

SORATH HARAPPAN SUBSISTENCE IN GUJARAT

The Sorath Harappan subsistence economy in Gujarat also seems to have been a complex weave of farming and pastoralism; a variable mixture of plant and animal exploitation. Let us deal with the animals first, since the situation there is a bit clearer, at least for the species that were exploited.

Excavations at a number of Harappan sites of both the Urban and Post-urban Phases have revealed a consistent pattern for the domesticated animals. This has been very capably summarized by Paul Rissman (1985a: 128 and 197) as follows:

TABLE 36
Selected Mammalian Remains from Harappan Sites in Gujarat

Site	Cattle %	Sheep/ Goat %	Pig %	Buffalo %	Deer %	Other %	No.	Source
Oriyo	84.7	13.9	1.4	—	—	—	1190	
Dhatva	76.4	0.2	2.7	3.0	12.8	4.9	657	Shah 1975
Kanewal	50	—	—	—	—	—	—	Shah 1980
Khanpur	62	—	—	—	—	—	—	Thomas 1984
Nageshwar (Urban Phase)	48.3	19.8	—	11	13.4	—	611*	Hegde, Bhan and Sonawane 1984
Nageshwar (Post-urban) Phase	41.8	33.1	2.2	3.1	10.7	9.1		Hegde, Bhan and Sonawana 1984
Prabhas Patan	55	—	—	—	—	—	—	Thomas 1984
Rangpur (all periods)	78	11	8	2	—	—	1847	Bhola Nath 1963
Rangpur (Urban Phase)	68.3	19	5.1	7.6	—	—	79	Bhola Nath 1963
Rojdi (all phases)	74.5	15.9	9.6	—	—	—	804	Possehl et al. 1985

*Total bone count for both periods.

Comparable data are now available from Lothal (Bhola Nath and Rao 1985). They did not compute percentages for this collection, but this can be quickly done. The counts are totals for all periods of occupation.

TABLE 37
Principal Mammalian Fauna from Lothal

	Bone Count	Percentage
Cattle	2592	56.3
Sheep/goat	941	20.4
Pig	840	18.2
Buffalo	201	4.5
Deer	15	0.3
Other	13	0.3
Total	4,602	100.0

It is clear from these data that cattle were by far and away the most significant domesticated animal during Harappan times in Gujarat. This observation is not significantly at variance from other data on the Harappans. A prominent role for sheep, goats and pigs in the subsistence regime is also evident, as is a certain amount of hunting.

The Urban and Post-urban Harappans of Gujarat were also farmers. The following cultivars have been identified at these sites in the region:

TABLE 38
Botanical Remains from Harappan Sites in Gujarat

LOTHAL		
Oryza sp.	rice	Lothal 'A'
Sesamum indicum?	sesame	Lothal 'B'
Setaria italica?	Italian millet	Lothal 'B'
(Ramesh Rao and Krishna Lal 1985:679)		
SURKOTADA		
Eleusine coracana	ragi	Urban Phase
Setaria spp.	millet	Urban Phase
In addition there is an assortment of wild, gathered seeds from the site including wild grasses, sedges, Cheno-Amaranths *Polygonum* sp. and *Euphorbia* sp. (Vishnu-Mittre and Savithri 1982: 214)		
RANGPUR		
Oryza sp.	rice	Period II A
Pennisetum typhoides	bajra	Period III (LRW)
(Ghosh and Krishna Lal 1963: 168-69, 171)		
ORIYO TIMBO		
Eleusine coracana	*ragi*	Lustrous Red Ware
(Rissman 1985a: 377)		(LRW)

This is a very sparse record on which to base a serious consideration of Harappan farming in Gujarat. The evidence for rice, which is endemic to the Lothal/Rangpur region comes from husk impressions in clay, not from carbonized grains themselves. The cultivation of this grass is not demonstrated. Sesame, evidenced at Lothal, has also been reported from Harappa (Vats 1940:467). Millets are an extremely interesting and important group of plants which seem to appear with regularity in the archaeological record of Chalcolithic peoples in western India (Possehl 1986a). They are summer grasses and therefore better adapted to the hot season monsoon rains of this region. This is of course in opposition to the growing season of wheat and barley, both of which are winter grasses which would prosper during the western Indian dry season and therefore need lift irrigation were they to be cultivated in Gujarat (Ratnagar 1986). Wheat and barley have been recovered from Harappan sites in Sindh and the Punjab and were a part of the Harappan subsistence regime in these regions (Vishnu-Mittre and Savithri 1982).

SORATH HARAPPAN SUBSISTENCE AT ORIYO TIMBO

The joint excavation efforts of the Gujarat State Department of Archaeology and The University Museum of the University of Pennsylvania began with one field season of work at a site known as Oriyo Timbo (Rissman 1985a, 1985b, 1986). Oriyo is a site of approximately 4 hectares, 70 kilometers east of Rojdi, in Bhavnagar District. Our work there revealed a number of important and interesting things.

First, the site has large quantities of Lustrous Red Ware (Rissman 1985a: 179-86). Thus, it was occupied after Rojdi, during the final phase of Post-urban Sorath Harappan life in Saurashtra. The site also seems to have been made up of a series of trash deposits and floor levels. Our excavations, although restricted, (Rissman 1985a:204) did not uncover remains of buildings. We did find what seem to be living surfaces and cooking facilities in the form of *tandoors* and *chulas,* making Oriyo look more like a camp than a village.

Evidence for some use of plants comes from the recovery of finger millet (*ragi*) along with quern and muller fragments (Rissman 1985a:377). The excavations also yielded a significant quantity of animal bones which Rissman analyzed. His study of seasonally formed annular rings in the teeth of ancient cattle and sheep/goat allowed him to say the following:

> With the modern sample serving as a control, the results of the annular analysis for ancient teeth were introduced. Evidence of seasonal slaughter was found to cluster strongly within the period of rest line formation and immediately afterward, marking the months of March to July for the deaths of Oriyo cattle as well as sheep/goat. This cluster was even more strongly defined when teeth with exposed roots were withdrawn from the result, correcting for the effects of differential preservation. Aging indications pointed to a significant cull as adulthood was reached, and while substantial number of animals survived into midle and old age, there was little evidence for very young animals in the faunal assemblage.
>
> The marked cluster of seasonal slaughter from March to July was evaluated in light of other evidence for migratory pastoralism at Oriyo. The indications of a nearby marsh, the thickness of deposit (at the site), and lack of architecture despite adequate preservation, in conjunction with the consistency of slaughter patterns among both large and small stock, led to the conclusion that Oriyo was in fact seasonally occupied by herds that camped there in the dry season and shortly after . . . The entire body of evidence indicates that Oriyo was a temporary dry season pastoral camp, probably unoccupied during the remainder of the year (Rissman 1985a:379–80).

We went to Rojdi in part because it seemed to present a contrast to Oriyo in terms of the dimensions of settlement and subsistence that Rissman was addressing. Oriyo seems to have been a camp, Rojdi was a village or town. Oriyo had no architecture to speak of; Rojdi has large buildings and a circumvallation. Oriyo appears to have been occupied seasonally; Rojdi all year around. Oriyo was the home of pastoralists who may have undertaken a bit of cultivation; Rojdi seems to have been the home of farmers who kept some animals.

SORATH HARAPPAN SUBSISTENCE AT ROJDI

The generalities we have been making about the Harappan subsistence regime is to some degree both hypothetical and conjectural. The work is still in progress, but thinking in this way did allow us to move ahead with some ideas about the data we were recovering. It also gave us a basis on which to make strategic and day-to-day decisions about the site. For example, we worked on the Gateway, the Large Square Building and the South Extension to investigate the internal settlement pattern of Rojdi. We have explored a number of different depositional environments at the site. These include trash pits, living surfaces, secondarily deposited fill and the contents of bins and other features.

Our sampling plan and excavation strategy yielded meaningful quantities of both bones and botanical remains. Preliminary reports have been prepared by Rojdi team members Mr. Steven Weber and Mrs. Victoria Stack Kane. Mr. Weber has gained much from Dr. Vishnu-Mittre, an advisor on palaeobotany. We also want to recognize the fact that Ms. Gail E. Wagner has made a very significant contribution to the success of the palaeobotanical work at Rojdi. Mrs. Kane has been very generously advised by Dr. G.L. Badam, as well as other scholars at Deccan College. We want to express our thanks to all of these individuals.

PALAEOBOTANICAL RESEARCH AT ROJDI

Steven A. Weber and Vishnu-Mittre

The principal aim of the archaeobotanical research at Rojdi is to understand the ancient inhabitant's interactions with plants and to make inferences concerning diet and the protohistoric environment around the site. It may also be possible to study certain social contexts for man/plant relationships at the site.

The corpus of plant material recovered at Rojdi can be accounted for in a number of ways. Some of it seems to have been brought there by the ancient inhabitants and then used in some "primary" way. Seeds and woody remains might fall into this category. There are also plant residues; by-products from other activities involving plants. Husks and threshing debris are of this nature. Other plant parts may have reached the site by having been incidentally included in a different resource. Finally, natural dispersing agencies, like pollen rain, brought materials to the site.

The plant remains from Rojdi come in a variety of shapes and sizes. Some of them are burned, others are unburned. They range from microscopic pollen grains, phytoliths and small seeds (plant microfossils), to clearly visible items such as large seeds, twigs, stems or pieces of wood (plant macrofossils). Interpretation of the variability of the spatial and temporal distribution of these botanical remains, which is the basis of this research, is based on understanding the relationship between various plant species and other cultural remains (artifactual and structural). The patterns of variability are assumed to be the results of the social and behavioral patterns of the occupants of Rojdi and can therefore be the basis for interpreting and reconstructing man/plant interrelationships. These interrelationships are regarded as essentially responses to both social and natural opportunities and constraints and are explored in terms of the short and long range effects on plants, the habitat and social and economic development.

Archaeobotanical Methodology Used at Rojdi

A systematic sampling and intensive recovery program was developed at Rojdi. Our plan called for the collection of soil samples from each stratum within every trench; from the fill of all features, pits, hearths, burials, and ceramic vessels; from the surface of artifacts, floors, and activity areas; and from all trash dumps. The initial sampling strategy was developed and employed by Ms. Gail Wagner who worked on the project during the 1982/83 and 1983/84 field seasons. From the 1984/85 field season onward. Steven Weber has been working on the collection and analysis of the archaeobotanical material. Dr. Vishnu-Mittre, who has also been associated with the project since 1984/85 has been contributing his expertise and guidance on the identification and interpretation of the botanical remains.

A flotation system (Plates 41 through 46) was developed that was based on a modified oil drum

provided with running water and a "basket" insert with a screen bottom. The barrel was filled with water and soil samples poured into the basket. The earth and water sample mixture was agitated by hand and by a piped-in water jet coming up through the basket screen from within the barrel. Silt settled through this screen to the bottom of the barrel. A heavy fraction of stones and other materials larger than 1.5 millimeters collected on the basket screen as a "heavy fraction." "Light fractions," including plant remains, were floated off of the top of the basket into cheese cloth where they were tagged and allowed to dry along with the heavy fractions. After drying, the heavy fraction was sorted by sifting the material through geological sieves and picked through by hand. Plant remains from the heavy fraction were included with the corresponding light fraction for further analysis.

The dried light fraction, consisting of palaeobotanical remains, snail shells, rootlets, stone debitage and occasional microbeads, etc. was examined under a microscope for identifiable remains. Plant parts for example, seeds, husks, woody material) were then counted and described. Various types of specimens were also sketched and photographed.

In an effort to test the flotation recovery rate for seeds in the soil, a poppy seed test (devised by Gail Wagner) was employed. The test consisted of placing 50 carbonized poppy seeds (*Papaver somniferum*) in the archaeological soil of some of the samples prior to flotation. When the light fraction of these samples were examined under the microscope the number of poppy seeds counted would give an indication of the recovery rate accuracy. The tests run by both Gail Wagner and Steve Weber had rates of recovery of between 82 and 96 percent, a rate which compares well with tests performed on other types of flotation equipment.

The identification of the material was facilitated by the use of a comparative collection of both carbonized and uncarbonized seeds from the plants of Gujarat. The preparation of this collection was largely undertaken by Dr. Vishnu-Mittre.

The volume of soil in each sample was recorded, as was the volume and weight of each corresponding light and heavy fraction. Any subsequent information (generally dealing with contamination) which may be relevant to understanding the significance of the material's occurrence was noted as well.

Palaeobotanical Findings at Rojdi

The palaeobotanical program at Rojdi has progressed sufficiently for some preliminary statements to be made about the plants that are present in our large sample or approximately 10,000 specimens. It is necessary to emphasize the fact that this statement is preliminary in nature since the analysis of the palaeobotanical material from Rojdi is still in process. The plant part counts presented here represent totals for the entire botanical collection from Rojdi, not just those that have archaeological significance.

A total of over 600 soil samples, representing over 2,500 liters of soil, were processed and analyzed. Sixty of these samples were analyzed for their pollen content, while the remaining samples were floated for the large macrobotanical remains. Although the majority of the archaeobotanical reconstruction will be based on the seeds recovered from the flotation samples, the use of plant impressions in pottery and burned clay, charcoal, and pollen will also be used during this process. Plant opal phytoliths were also successfully recovered from the Rojdi soils, but due to the lack of the necessary comparative material, and the richness of the other types of botanical data, they will not be analyzed at this time.

The seed collection recovered from Rojdi is extraordinarily rich and preliminary work on the collection has therefore focused on it. The remaining portions of this report will review, once again in a preliminary way, the results of this research. Almost 90 percent of the flotation samples contained seeds, leading to an average of approximately 18 seeds for every sample. These seeds are in different states of preservation; some are carbonized, others are not. Some of the uncarbonized seeds

probably represent contamination. The context in which these uncarbonized seeds were recovered will help determine which samples have prehistoric significance. Of the nearly 10,000 seeds being analyzed, nearly 70 different taxa seem to be present. It would seem reasonable to suggest that identifiable carbonized seeds from secure proveniences will reduce these number.

Seeds were recovered from 42 different trenches and from nearly every stratigraphic level. The highest density of seeds per volume of soil came from the North Slope in trenches 20U and 21U, where 18 percent of the seeds were recovered. The largest number of seeds was from the Main Mound (trenches 45K, 46K and 46L), with 42 percent of the collection. The 33 remaining trenches, all located on the South Extension, contained nearly 40 percent of the recovered seeds. The South Extension also had the lowest average of carbonized seeds per liter of soil for any location.

The taxonomic classification of the seeds has been based solely on comparative material, since no seed keys are presently available for South Asia. Nearly 1,000 seeds were obtained for a comparative collection either from the gathering of plants actually growing in Gujarat or from plant collections in herbaria at different institutions in India.

A preliminary, undoubtedly partial, list of the plants recovered from Rojdi soil samples, identified using standard botanical technique and our comparative collection, is presented in Table 39. This list is both incomplete and subject to change as the material is more thoroughly examined. This list includes references to both carbonized as well as uncarbonized seeds.

Discussion of the Rojdi Palaeobotanical Research

Due to the preliminary nature of this statement on palaeobotanical research at Rojdi, and the lack of complementary data on the variety and distribution of zoological, artifactual and structural

TABLE 39
Preliminary List of Plants from Rojdi

MILLETS	
	Sorghum
	Echinochloa
	Eleusine
	Setaria
	Panicum
PULSES	
	Phaseolus
	Pisum
	Lens
OTHERS	
	Acalypha
	Abutilon
	Areca
	Amaranthus/Chenopodium
	Euphorbia
	Hordeum
	Portulaca
	Psidium
	Solanum
	Trianthema
	Zizyphus

remains at the site, only a few questions about the human/plant interrelationship occurring at Rojdi can be tentatively addressed.

What we know of the botanical remains suggests a considerable variety in the plant-usage strategy. Food grains such as *Setaria, Eleusine,* and *Panicum* appear with some frequency. Most, if not all, of these millets were probably being cultivated. The collection and use of wild plants was also significant. In fact, it is likely that most of the plants that were being exploited were either wild or partially managed. Which of these species was associated with the human diet, animal fodder and non-subsistence activities has not been determined at this time; however, this is one of the problems to be addressed as a part of the overall research being undertaken.

There appears to be a change in plant use over the period of occupation of the site in that the types and proportions of plant species appearing in the earliest levels of the site differ from those occurring in the later levels. This observation is based on radiocarbon dates and the preliminary results of our ceramic analysis. There is also great variety in the horizontal distribution of plants, especially when comparisons are made between the South Extension and the main Mound. For example, charred *Chenopodium* seeds are most common, at times even abundant, in the lower levels of the Main Mound. The highest frequencies of *Setaria* come from the North Slope and *Eleusine* occurred regularly on both the Main Mound and in the South Extension, but rarely on the North Slope. It is still too early to discuss the significance of these distributions.

While some of the plants recovered from Rojdi are similar to those found in the region today, implying a similar type of environment, there are some plants that were recovered which are presently not seen in the area, which may imply a change or fluctuation in the local habital. This avenue of investigation in yet another direction which the analysis of this large corpus of palaeobotanical materials will take in the future.

Plant material was used for temper in the thicker types of pottery found at Rojdi. Impressions of grass stems and seeds have been identified in many of the coarse wares, including at least one species of *Setaria.* There is another preliminary observation that can be made about the plant temper in pottery. Since the analyzed sherds represent pottery from all levels and periods of Rojdi occupation, and since there presently appears to be little or no change in the percentages of grain tempered ceramics, it might be concluded that the use of grass in pottery temper remained a relative constant throughout the site occupation. Whether or not the use of *Setaria* as a tempering agent is limited to Rojdi, or represents a regional trend, still needs to be explored.

Morphological variation in many seeds of the same type is quite noticable at Rojdi. Variation of this kind is generally small for seeds of the same species, from the same provenience. But, there is a contrast. When seeds of the same species, yet from different periods of occupation, are compared, some species (for example, *Setaria* spp.) show remarkable variation in size. Morphological variation of this kind is useful in understanding the structure within which the Rojdi inhabitants made decisions with regard to plant utilization and how this interaction progressed. Over periods of time that may involve only a few plant generations, man/plant interaction can "propel" the genetic material of a plant in some new direction; perhaps toward domestication or a better adaptation to a humanly generated ecological niche. Such changes may be phenotypically expressed in the kind of morphological variation seen in the Rojdi seeds.

Some Preliminary Conclusions

The palaeobotanical research at Rojdi has yielded a significant collection of protohistorical plant materials. The nearly 10,000 seeds from approximately 70 different taxa are well documented and come from a variety of depositional contexts within the site. The volume and variety of plant material recovered from the site is not an example of unique preservation factors or plant use strategies. Rather, it demonstrates that a sound sampling strategy coupled with intensive recovery methods, in this case flotation, can lead to significant results in the Indian environment.

Finally, the archaeobotanical data from Rojdi can be used to reconstruct the ancient

subsistence system, the inhabitant's use of plants generally and make preliminary inferences concerning the regional environment. The richness of this collection will also allow the formulation of hypotheses concerning local processes of domestication and plant evolution. Plants such as *Setaria, Sorghum* and *Eleusine* may have such significance. The location of the origin, use, management and subsequent domestication of these plants is not only debated but has specific significance, in that they seem to be associated with certain types of human population interactions and movements. Sites like Rojdi, where there is early evidence that these plants played a role in the inhabitants' plant-use strategy. should contribute to the regional understanding of subsistence variation and change.

ANIMAL REMAINS FROM ROJDI:

Victoria Stack Kane

Introduction

The four seasons of excavation at Rojdi produced a large collection of mammal bones. These have all been cleaned and sorted. Most have been identified. A substantial collection of teeth is currently at Deccan College, awaiting further work. Since the analysis of this collection is not yet complete, this report is a very preliminary statement on these materials.

The process of analysis was guided by works on South Asian mammals (Blanford 1888-91; Beddard 1968; Clason 1977; and Prater 1980). Detailed analysis made use of guides and other works (Boessneck, Muller and Tiechert 1964; Driesch 1968; Schmidt 1972; Grigson 1974, 1975, 1976, 1978, 1980; Brown and Gustafson 1979; Gilbert 1980 and Groves 1981). The author wishes to express her deep debt to Dr. G.L. Badam and Dr. P.K. Thomas of Deccan College, for their assistance with this research.

Taxa Present at Rojdi: Mammals

Family Bovidae

Of the subdivision Bovinae; *Bos* spp, ***Bubalus bubalus domesticus, Ovis*** spp., and *Capra* spp. were present and were in fact the most numerous remains. In the subdivision Antilopinae, *Boselephas tragocamelus,* possibly *Tetracerus quadricornus, Antelope cervicapra* and *Gazella gazella* were present.

Family Cervidae

Axis porcinus and possibly *A. axis* of the smaller deer were present, as was *Cervus duvauceli* and possibly *C. unicolor.*

Family Suidae

Pigs were represented by both wild and domesticated species: *Sub scrofa cristatus* and *S. scrofa.*

Of the above groups the most common remains (by bone count) were those of the Bovinae and of these *Bos* predominated. Roughly 75 to 80 percent of all bones identifiable to genus level were assigned to *Bos* spp. Identification at this level was very conservative, to avoid error. If there was doubt about the genus identification the bone was not assigned that designation.

In a few cases it was possible to identify the Indian zebu (*Bos indicus*) by the presence of a bifid dorsal spine on the thoracic vertibrae. This identification is usually made by reference to the distinctive cranial features of the zebu. The paucity of adequate cranial remains from Rojdi precluded the use of this method.

Cervids and Suids were the next most common after the Bovidae in the Rojdi faunal assemblage. Each represents approximately 8 to 10 percent of the total number.

The remaining 5 to 9 percent of the bones belong to a diverse set of animals. The dog family (Canidae) is represented by 2 to 4 percent of the total assemblage. Most fragments appear to be from the domestic dog *Canis familiaris.* One distinctive and large ulna fragment suggests the presence of the Indian dhole, *Cuon alpinus.* A radius fragment seems to have been from the jackal, *Canis aureus.*

Cats, if present at all, were very scarce at prehistoric Rojdi. The few bones which seem to be of the Family Felidae were fragmentary and difficult to deal with. There is a chance that both the desert cat (*Felis lybica*) and the domestic cat (*Felis catus*) are present, but confirmation will have to await further comparison.

The Lagomorpha, hares and rabbits, are present; being represented by a few fragments of the Indian hare (*Lepus nigricollis*).

A few mammalian taxa are represented in the Rojdi collection by single fragments. For example, the collection contains one first phalange of the wild ass (*Equus hemionus*). There is one massive rib which appears to be from the Indian elephant (*Elephas maximus*). There is an enigmatic bone, definitely not of a bovid, cervid or equid, which may be from the camel (*Camelus dromedarius*). Finally, there is a fragmented jaw which is from an Indian crested porcupine (*Hystrix indica*).

There are several excavation lots which contain the nearly complete remains of rodents (*Rattus* spp.). These may have come from animals which burrowed into the site after it was abandoned.

Non-mammalian Remains

The Rojdi faunal collection contains a large body of shells, both riverine and terrestrial. They have been sorted, but not identified. There are also a few fish vertibrae, including one which appears to have been purposefully smoothed on one side. Given Rojdi's location on the bank of the Bhadar River, it can be presumed that the fish are fresh water species.

There is a single, poorly preserved jaw from a lizard, probably of the Family Lacertidae.

Shells of tortoise (*Trionyx* sp.) were present in approximately 20 percent of the excavation lots. These creatures are quite common in Gujarat.

Most of the bird bones could not be easily identified. Some of them appear to be peafowl, and will be worked on in the future. A remarkably preserved tibiotarsal of a domestic fowl, *Gallus* sp., was present. It is so well preserved that it could even be designated by sex, based on the presence of a spur which marks a cock from a hen.

Discussion of Body Part Representation

By far the most common bones, or bone fragments in the Rojdi collection are the "unknown fragment". These account for approximately 50 percent of the total.

Of identifiable remains, the most common by both number and weight, were teeth, a few of which are attached to jaws or maxillae. A great deal of work remains to be done on the specific identification of the teeth, and this represents one of the most promising directions for future laboratory work to take.

Almost as common as teeth are the short, dense bones such as calcanei, astragali, phalanges, carpals and tarsals. Many of the species level identifications were made on this class of body part.

THE ROJDI SUBSISTENCE SYSTEM: Some Preliminary Thoughts and Generalities

There is much yet to be done on our work with the Rojdi subsistence system. Still, the broad outlines of the economy is emerging and the research we have done so far allows us to focus our attention on more clearly stated problems. First, the balance in the mix of plant and animal resources is striking. While Oriyo Timbo was a seasonal encampment of herders, Rojdi seems to occupy the

other end of the subsistence continuum as an agricultural settlement, with complementary emphasis on animal husbandry. We suspect that animals were herded locally, taken out from the settlement for periods of a week or so in the near vicinities to graze. It is also likely that there was rich and continuous interaction between the inhabitants of Rojdi and herding peoples with the kind of adaptation that we have suggested for Oriyo.

On the plant side we have evidence of monsoon cultivation with the rich inventory of millets that have been recovered from the site. The seeds of *Zizyphus*, known in Gujarat as *ber*, is still a plant whose cherry-like fruits are even today widely consumed in villages, and sold as food in urban markets like those in Rajkot. The presence of what appear to be large quantities of *Chenopodium Amaranthus* and *Euphorbia* may suggest a substantial foraging component to the Rojdi subsistence system, something hinted at in data from Surkotada (Vishnu-Mittre and Savithri 1982:214). It is also possible that these were cultivated, or "helped along" in their growth cycle with human assistance. Mr. Weber will be pursuing these questions, in part through a systematic investigation of seed size of both ancient and modern specimens of these plants. He will also be pursuing the issues raised in his report which deal with the evolution of cultivated plants in Gujarat.

The Rojdi Project and the Evolution of the Traditional Subsistence Regime in Western India

The subsistence regime of western India is a complex weave of plant and animal resources set within a diverse social setting. At one level, however, it can be characterized as a flexible adaptation with individual producers shifting along a continuum ranging from fully sedentary, irrigation dependent agriculture, to fully mobile, pure pastoral nomadism. The principal food grains are the two monsoon grasses, *Sorghum bicolor* and *Pennisetum typhoides*, which are supplemented by wheat and barley in areas with winter rain, or access to irrigation. A range of vegetables and pulses complement the food grains. The animal economy is based on cattle, complemented by goats and very few sheep. The cattle are kept for traction and milk, although the water buffalo is by far the most important animal for the latter resource. Cattle are also the prestige animal in the region. Goats are raised for fiber and are occasionally eaten.

The subsistence patterns which emerge in western India, especially Gujarat have their roots in the Harappan economy, with the integration of the two millets into the subsistence system. The availability of these two new African summer grasses may even be one of the base "causes" which led to the development of the early village farming community in western India to the east of the Indus. The Rojdi data set is a substantial one, which will allow us an initial insight into the beginnings of the agricultural system in this part of Asia.

SUMMARY AND CONCLUSIONS

It is clearly not yet possible for us to draw a series of tightly formulated conclusions from the Rojdi project. We will therefore conclude this report with a short statement on the way we would like to have our results disseminated.

A number of data sets have been given to students as dissertation projects. These will appear as independent publications, which will have their own problem foci. These dissertations will be reworked into monographs by one of the Pennsylvania team members working in conjunction with an Indian counterpart. For example, Mr. Weber will be working with our palaeobotanical advisor, Dr. Vishnu-Mittre, on the final publication of this body of material. We are hopeful that the dissertation work will be completed within three years. Producing a monograph will follow that.

The data sets that are not assigned to dissertation students will be written-up by either a scholar from the Gujarat State Department of Archaeology or the University of Pennsylvania and separately published as a paper or small monograph.

When all, or virtually all, of the Rojdi material has appeared in print, or is at least thoroughly digested, the present authors plan to bring these results together in a separate monograph synthesizing and summarizing the project. This last publication will take time to prepare and will demand the patience of our friends and colleagues.

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